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Historic Resources Component

NEW BOSTON GARDEN DEVELOPMENT

Submitted to
Boston Redevelopment
Authority
City of Boston

Submitted by
New Boston
Garden Corporation

Prepared by
Vanasse Hangen Brustlin, Inc.

Project
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Draft **PIR**

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Garden Corporation

Prepared by
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I Overview

The Boston Garden/North Station building has played a significant role in the social, cultural, political, and entertainment history of Boston. It has been the venue for hockey and basketball games, boxing matches, political rallies, concerts, and many other events.

The contents of this Historic Resources Component responds to the Boston Redevelopment Authority (BRA) Scoping Determination for the New Boston Garden Development[1] which requests: a description of the architectural and engineering elements of the existing Boston Garden/North Station building; a discussion of the social, political, and entertainment significance of the building; and photographic documentation of the existing building as well as original plans and historic views.

This volume consists of the following sections:

- Summary of the history of the Boston Garden/North Station building
- A list of key events in the history of Boston Garden
- Photographic copies of historic views of the building and vicinity
- Photographic copies of original plans for the Boston Garden/North Station Building
- Photographic copies of architectural and engineering data for the building
- A photographic record of the exterior and interior of the existing building according to Historic American Building Survey (HABS) standards
- "A History of Boston Garden - A Diamond Jubilee (1928 - 1988)" - anniversary issue published by the Boston Phoenix

As required in the BRA Scope, this volume will be submitted to the Boston Landmarks Commission, the Massachusetts State Archives, and the New England Sports Museum.

1/ Scoping Determination New Boston Garden Development; Boston Redevelopment Authority, August 18, 1989, as modified.

II History of Boston Garden/ North Station

INTRODUCTION

This section summarizes the history of Boston Garden including an overview of the historical setting and development history of the area. Information in this chapter describes the architectural and engineering elements of the existing Boston Garden/North Station building and discusses the social, political, and entertainment significance of the building.

HISTORIC DEVELOPMENT AND SETTING

The site of the Boston Garden/North Station was originally an embayment of the Charles River, which extended beyond Haymarket Square. Before the development of the city in the early 1600s, this area was under the waters of the Charles River and was known as North Cove or Mill Cove. At low tide, the tidal flat of the area was passable in the vicinity of present-day Causeway Street. By the mid-1640s, millers who had been granted water rights to North Cove had changed the shoreline by damming the cove at its mouth, thus turning the basin into a large millpond.

In 1804, the North Cove mill owners reached an agreement with the City to fill the cove. A dike was first built along the present line of Causeway Street, completely cutting off this portion of the river. Around 1830, the project area was filled by means of the partial leveling of Beacon, Cotton (Pemberton), and Copps hills. The area south of the project site was initially filled in the early 1800s and is characterized by a triangular street pattern laid out by Charles Bulfinch.

The project site was developed first as a commercial waterfront and shortly thereafter as a rail terminus for several railroads. The Boston & Lowell Railroad opened for travel in 1835 with its Boston terminus just south of Causeway Street. The Boston & Maine Railroad originally extended into Haymarket Square, despite a city ordinance which forbade locomotives from crossing Causeway Street.

By the 1850s, four northern rail lines--Boston & Maine Railroad, Fitchburg Railroad, Eastern Railroad, and Boston & Lowell Railroad--terminated at or near Causeway Street, each with its own passenger and freight depot. These four railroad lines were located on the site of the existing Boston Garden. In the late 1880s, plans were made to consolidate the railroad facilities, and

construction of the new Union Station was completed in 1889. The Union Station facility originally consisted of three brick structures located together on the north side of Causeway Street, allowing access through individual connections to one main train concourse. The facade and concourse of Union Station, designed by the architects Sheply, Rutan, and Coolidge, was a large neo-Romanesque arch fronting on the north side of Causeway Street.

Near the turn of the century, Union Station was the largest railroad station in the United States and served roughly 500 trains a day. By the early 1920s, however, the facilities, operated as a unit by the Boston & Maine Railroad, were not adequate to serve the large daily passenger load.[2] The Boston & Maine Railroad had a stated policy of providing Boston and New England with the best possible transportation facilities.[3] The condition of Union Station and its associated railroad facilities, along with increasing demands for rail transportation, created the need for a new facility. Union Station and the depots behind it were demolished in 1927 to make way for the existing Boston Garden/North Station building.

The Boston Garden/North Station area has long been the focus of local and out-of-town travel. In the late 1800s, in order to alleviate street congestion, an elevated track was built in the vicinity of the site, replacing the street trolleys. The elevated trolley track, which was part of a citywide transit system, was originally located between Canal Street and Haverhill Street, and split off in easterly and westerly directions along Causeway Street. Much later, in the 1950s, with the building of the John Fitzgerald Expressway (Central Artery), this configuration was modified so that the elevated tracks extended only west along Causeway Street from just east of the intersection of Causeway Street and Canal Street. This line is currently part of the Massachusetts Bay Transportation Authority (MBTA) Green Line rapid transit route which runs from downtown Boston to Lechmere Station in Cambridge. The elevated structure is scheduled to be removed in 1996 once the new MBTA Green Line tunnel is completed.

EXISTING BUILDINGS

The existing Boston Garden/North Station building was constructed in 1927 and 1928 to replace the outdated and inefficient railroad facilities of Union Station. The development included a new arena (coliseum) which was built above the new North Station terminal. The building, including both the train station and the arena, was owned by the Boston & Maine Railroad. The marketing of the arena portion of the project was the responsibility of Tex Rickard, a New York boxing promoter and developer of New York Madison Square Garden. Tex Rickard is attributed with developing the concept of building the arena over the air rights of the railway line. After Mr. Rickard's death only two months after the Boston Madison Square Garden's opening, the Boston Madison Square Garden Corporation took over responsibility of promoting arena events.

2/ "Old North Station at Boston Replaced by a Modern Structure Including a Coliseum"; Engineering News Record (February 28, 1929).

3/ "B. & M. Opens First Unit of New Passenger Station at Boston"; Railway Age (August 25, 1928).

North Station was formally opened on November 14, 1928, in a ceremony attended by President Calvin Coolidge. Train facilities occupied the ground floor and mezzanine. These facilities were designed to accommodate approximately 80,000 passengers per day. The Boston Madison Square Garden arena hosted its first event on November 17, 1928, and seated between 14,000 and 18,000 people. It was reported to be the largest arena in the United States at the time. After Tex Rickard died in 1929, the Boston Madison Square Garden Corporation held a competition to rename the building. Since that time it has been known as Boston Garden. Boston Garden has been the home of the Boston Bruins ice hockey team since its opening. In 1946, the newly formed Boston Celtics basketball team also made Boston Garden its home.

The Garden/North Station building was owned by the Boston & Maine Railroad until December 29, 1965, when it was sold to Linnel and Cox, trustees for the 120 Trust. On May 25, 1973, New Boston Garden Corporation purchased the building. At the time of this purchase, New Boston Garden Corporation was a subsidiary of Storer Broadcasting. Delaware North acquired New Boston Garden Corporation in October 1975.

Building Design and Original Construction

Boston Garden was designed by Funk and Wilcox Co. of Boston, and the North Station facilities and building facade were designed by Fellheimer and Wagner Co. of New York. The building is one of approximately forty Art Deco buildings and storefronts built in Boston between 1926 and 1950, and was constructed at the height of a citywide building boom.

At the time it was built, the Boston Garden/North Station building was unique in using air rights above a train station for the construction of an arena.[4] It was part of a larger development project which also involved the widening of Causeway Street, the construction of the adjacent North Station Industrial Building (Anelex Building), and the construction of the now-demolished Hotel Manger (Madison Hotel). Figure IV-6 in Chapter IV of this appendix shows a photograph of the building under construction in 1928.

The six-story Boston Garden/North Station building consisted of the passenger terminal area and the arena located above the terminal area. The arena was connected to the station by wide exit ramps at the east and west ends, which provided connection for the public between the elevated railway station on Causeway Street, the arena floor level, and the station floor level. Chapter VI of this appendix includes diagrams of various elevations of and sections through Boston Garden/North Station.

The building had a frontage of 440 feet on Causeway Street. The trains were originally located approximately 170 feet north of the curb line of the street. The waiting room and concourse were located between Causeway Street and the train platform. The train station area originally included a mezzanine level with additional waiting areas and stores. The arena, built above the train concourse, had an overall west-east dimension of 360 feet with a depth of 205 feet. It extended over the train area about 35 feet beyond the train gates. A three-story building along Haverhill Street (a portion of which is now called

4/ Building Information Form, Area - CBD, 84-118 Causeway Street - North Station and Boston Garden; Boston Landmarks Commission.

Accolon Way) was designed to accommodate baggage space on the ground floor, This building was later demolished, and the site is currently used by the Massachusetts Bay Transportation Authority (MBTA).

The train waiting room was approximately 40 feet in width and 260 feet in length, and the concourse was 60 feet in width and 440 feet in length. Station facilities on the ground floor included the train announcement boards, ticket offices, an information bureau, Western Union Telegraph Co., parcel and baggage check rooms, exhibit spaces, and various stores and rental areas. The mezzanine included offices, waiting areas, restrooms, and small stores.

The arena above the railroad station originally had a seating capacity of approximately 18,000 for boxing events and 14,500 for hockey (basketball was not introduced until the 1940s). The main arena floor was 100 feet wide and 245 feet in length, and could be converted to an ice surface for hockey or to a wooden floor for other events. The seats were arranged around the arena in stadium (oval) form, with one large balcony extending completely around the building, and an upper balcony along each side of the building. Stairways were located at each corner of the arena to provide access and egress for events as well as emergency egress.

The foundation for the building required considerable excavation of wood piles and granite blocks originally used in the construction of the former Union Station. The building was supported on concrete piles (see Figure IV-E-5), and the station and arena were both supported by structural steel. The station steel was erected first, and the concrete arena floor was then put in place. This served as a working floor for the erection of the arena. A system of roof trusses and crossbeams was used for the roof.

The exterior finish of the building was buff face brick arranged in strong vertical patterns. The interior of the station was finished with terrazzo floors, marble wainscot, and tinted and textured California stucco walls and ceilings. The arena lobbies and foyers had terrazzo floors with plastered walls. The remainder of the interior was surfaced with terra cotta tile. Stairs, corridors, and concrete seat steppings were all given a plain concrete finish. The roof trusses were painted aluminum color, the walls and facias light buff, and the wooden chairs olive green.

Heating and ventilation for the station and the arena were constructed as separate systems. The station had large fans at each end of the concourse and waiting room. The arena heating system was designed to meet the variable conditions required for different events. Five large fresh air supply fans and eight exhaust fans were located at the roof level. All of the air used for ventilation was filtered through oil-flushed filters and then passed through heating stacks.

The arena floor was equipped with a brine-piping system to provide an ice floor surface for ice hockey and other events. The ice floor required 13 miles of 1-1/4-inch piping embedded in special concrete. An amplifier, which hung from the roof trusses in the center of the building, was installed at the time of construction. The amplifier could be operated from the ringside, the balconies, or the engineer's room.

Renovations, Repairs, and Improvements

Since the construction of the Boston Garden/North Station in 1928, the building has undergone significant alterations. For example, the building's facade is severely deteriorated and requires constant on-going maintenance to protect public safety as well as general maintenance to the building. The arena facilities, in particular, have been upgraded to accommodate additional sports and cultural events, including improvements to seating, systems, and other features. These changes are described below.

Seating

The seating arrangements and number of seats in Boston Garden have been changed several times over the last sixty years. The original box seats in the arena have been converted to more functional and flexible seating, and the stadium concept of seating design of the original building is no longer in place. The most significant change was the installation of thirty-six sky boxes on the northern and southern sides of the arena. Built in the 1970s and 1980s, these boxes provide more spacious seating facilities. In 1982, the seating configuration was changed to provide additional seating in the mid-level section of the arena. All of the seating changes which have been implemented have made the seating plan more functional for users. There are currently approximately 14,420 seats for hockey, 14,890 seats for basketball games, and 15,000 seats for center stage or boxing events.

Building Systems

- The original ventilation system is still in place despite operational problems associated with reconfiguration of the seating. There is no air conditioning system.

- In the mid-1980's when a restaurant and club were constructed, various changes were made to the building's heating system, including the installation of five cooling towers.

- In the 1980s, the Boston & Maine Railroad, which originally provided electrical and steam service to the Garden, ceased operations. Boston Edison then provided electrical service, and an additional electrical feed was installed to provide back-up facilities. Over the years, fuses have been replaced with circuit breakers, and other maintenance procedures have been instituted. Instead of steam, heating of Boston Garden is currently by oil burners. A 10,200 gallon fuel oil storage tank was installed, surrounded by a concrete dam in an area behind the boiler room.

- The building's sound system has been improved, including the installation of additional speakers in the upper reaches of the arena and installation of cones in the catwalk areas to improve sound clarity.

Floor

A removable parquet floor, constructed of interlocking panels, replaced the original floor and was installed in Boston Garden to allow hockey and basketball games to be played on alternate days. The parquet floor is laid directly over the ice, which reduces the time necessary to change the floor to a different surface. The current parquet floor is twenty-eight years old and requires continual maintenance and repair.

Ice Surface

In 1969, the original brine-based ice surface was replaced with a freon-based system, and the refrigeration system was upgraded at the same time.

Other Facilities

Various other facilities have been added to the building including:

- A restaurant and club (Blades and Boards) was constructed in the North Station building in the mid-1980s to provide additional facilities for sports patrons and sky box owners. The Boston Madison Square Garden Club which provides tickets and other facilities to members is also located in the building, in space leased from New Boston Garden Corporation.

- A modern scoreboard, which allowed greater visibility of scores and more rapid response time, was installed in the 1970s.

- Improvements to the locker room facilities have been limited to replacement of fixtures.

- Two walkways passing over Accolon Way were constructed between the Boston Garden/North Station building and the Anelex building. These walkways were built to facilitate management and servicing of Boston Garden from the Anelex building.

Roof

A new roof, consisting of a Carlisle system of rubber sheeting built over the original roof, was installed during the 1983-84 season. The new roof provides improved insulation and weather protection.

Railroad Facilities

In the 1940s, a number of the train tracks were eliminated, the platforms were moved north toward the Charles River, and a parking lot was constructed in the area behind the North Station building. A covered walkway was constructed between the building and the platforms. Currently there is little remaining evidence of the original train waiting room fixtures and features. The wooden benches and stores have been removed, and the tiles and marble areas have been replaced. Access from the trains into the train concourse and out onto Causeway Street is extremely constricted, especially when crowds are present

for arena events. The train station is currently very unattractive, and it operates below the standards for which it was designed in the 1920s. Due to a number of factors, train operations have been reduced over the years, and the number of tracks has also decreased. There are also limited retail and support facilities available to commuter rail passengers.

The MBTA projects involving commuter rail improvements, Green Line improvements, and construction of the superplatform, along with the New Boston Garden Development including the Public Concourse, will modernize the train facilities. These improvements are necessary to expand capacity in response to growing public demand for commuter rail and rapid transit service, and are anticipated to provide adequate train services into the twenty-first century.

Physical Status of the Existing Boston Garden/North Station Building

Despite the changes and improvements described above, the Boston Garden building is deteriorating rapidly. Of particular concern are the mechanical systems serving the building. Although recent upgrades have been implemented, the electrical system is unreliable; in the last few years there have been interruptions in electrical service during sporting events and other activities. There is no air conditioning system serving the arena, which is a particular problem during the summer. Major events are rarely scheduled during the warm months of the year. The facade of the building is severely deteriorated and requires constant maintenance. The service and truck access to the facility is antiquated, and this limits the functioning of the building and use for concerts and other entertainment events. Views are obstructed in certain locations, and the sound system requires improvement. The inflexibility of the original design of the building, coupled with the general inadequacy of the facility, makes it difficult to compete with more modern arenas in the region, such as the Worcester Centrum and the Providence Civic Center.

The train facility can no longer adequately accommodate the commuter rail traffic required to serve the commuter routes north of the City. The waiting room area is, at best, inadequate, with limited places for seating, no space for lockers for commuters, and unsatisfactory access and egress to and from the trains.

Social and Cultural Importance of Boston Garden

Boston Garden has been an important venue for cultural and social events associated with the history of Boston. Originally built to be used for boxing, ice hockey, ice shows, and concerts, Boston Garden has hosted basketball games, tennis and soccer matches, political rallies, circuses, and religious gatherings. Boston Garden is the home of the Boston Bruins hockey team and the Boston Celtics basketball team.

The first sporting event at Boston Garden was a boxing match between Andre Routis of France and Dick "Honey-Boy" Finnegan of Dorchester. The Boston Bruins' first Stanley Cup was won in Boston Garden in 1929. During the 1930s, boxing, hockey, and public skating were the main attractions at Boston Garden. Other sporting activities held at Boston Garden during that time included

tennis, indoor baseball, and football. In 1946, the Boston Celtics basketball team played its first game in Boston Garden, against the Toronto Huskies, and in the 1950-51 season, the team became part of the professional basketball association through the efforts of Arnold "Red" Auerbach.

Many important political events and rallies have been held in the Garden, including: James Michael Curley's rally for his gubernatorial campaign in 1938; Franklin D. Roosevelt's presidential campaign rally in 1940 (the rally drew a crowd of 25,000 people); New York governor Thomas E. Dewey's presidential campaign speech in 1944; General Dwight Eisenhower's election eve rally in 1952; Winston Churchill's presentation at the Massachusetts Institute of Technology's Mid-Century Convocation in 1949; and John F. Kennedy's homecoming rally on election eve in 1960.[5]

Concerts, circuses, and appearances by musicians and entertainers at Boston Garden have included: the Ringling Brothers, Barnum and Bailey Circus (1929 to the present); big bands in the late 1930s and 1940s; Milton Berle and Bob Hope in 1949; Duke Ellington in 1951; Judy Garland in 1961; the Beatles in 1964; Elvis Presley in 1971; the Rolling Stones in 1975; Bruce Springsteen in 1980; and many others. Famous ice shows at Boston Garden have included: ice skating champion Sonja Henie's debut in 1936; the Ice Follies in 1937; the first Ice Capades in 1940; Peggy Fleming and the Ice Follies in 1969; and the first Disney's World on Ice in 1982.

Boston Garden has also been the location of many religious events. The evangelist Ronald Smith appeared in Boston Garden in 1929, Bishop Fulton Sheen appeared in 1953, and Jimmy Swaggart held his religious crusade in the Garden in 1983. The Garden is currently used approximately forty times a year by the Boston Church of Christ for services and meetings. Chapter IV of this appendix includes photographs of various events and games held in Boston Garden.

HISTORIC STATUS OF BOSTON GARDEN/NORTH STATION

There are three levels of historical protection or status which can be bestowed on historic properties: listing on the National Register of Historic Places; listing on the State Register of Historic Places; and designation as a Boston (local) Landmark.

In the 1980 Central Business District Preservation Study, Boston Garden/North Station was recommended for individual listing on the National Register of Historic places by the Boston Landmarks Commission (BLC). The BLC described the building as "an early example of an Art Deco Style structure which survives largely intact and continues to serve its original purpose as a railroad terminal and coliseum".[6]

5/ "A History of the Boston Garden: A Diamond Jubilee 1928 - 1988"; Francis J. Connolly, Boston Phoenix (1988).

6/ "Central Business District Preservation Survey Draft Summary of Findings"; Boston Landmarks Commission (1980).

At the time of evaluation by the BLC, the building had undergone substantial modification and repair as described in the section on renovations and improvements. However, in 1983, the Massachusetts Historical Commission found the Boston Garden/North Station building to be ineligible for National Register listing or protection as an historic resource on the State Register of Historic Places.[7] This was due to the further renovations and improvements made to the building which have compromised its historic integrity. Thus the building is not eligible for protection as an historical resource neither under Massachusetts Historical Commission's nor the Boston Landmarks Commission's purview.

According to Massachusetts Historical Commission records, the archaeological significance of the site is minimal. As described earlier, the site is built on fill; as a result of the filling in the early 1800s, it is unlikely that there would be significant undisturbed archaeological remains predating 1835 in the area.[8]

7/ North Station Urban Renewal Project Final EIR (November 30 1983).

8/ Bulfinch Triangle Historic District, Boston, Massachusetts; National Register of Historic Places Inventory - Nomination Form; no date.

III Key Events

The following section summarizes the key events which occurred each year in the history of Boston Garden. These events are representative of sporting, entertainment, political and cultural milestones in the history of the City. The list of events was initially prepared for New Boston Garden Corporation as part of the 1988 Anniversary Celebrations and has been updated to the present.[9]

1928

PRESIDENT CALVIN COOLIDGE
Dedicates the new Boston Garden/North Station building

OPENING EVENT-PROFESSIONAL BOXING
Dick "Honey-Boy" Finnegan (Dorchester) wins against World Featherweight Champion Andre Routis

FIRST PROFESSIONAL HOCKEY GAME
Boston Bruins play against the Montreal Canadians in the Bruins' Boston Garden debut

PUBLIC SKATING
Public skating introduced for the first time

1929

FIRST PROFESSIONAL WRESTLING
Defending champ Ed "Strangler" Lewis loses title to Gus Sonnenberg

FIRST KNIGHTS OF COLUMBUS TRACK MEET
Features Olympian Paavo Nurmi, the world's fastest long distance runner

FIRST STANLEY CUP CHAMPIONSHIP
Boston Bruins defeat New York Rangers in best-of-three series

GIPSY SMITH - BRITISH EVANGELIST
Pledges to aid Attorney General's program to wipe the state clean of bootleggers and rum runners; attendance was 42,000, the second-highest single-day crowd in Boston Garden history

9/ Source: New Boston Garden Corporation.

RINGLING BROS. AND BARNUM & BAILEY CIRCUS
First Boston appearance without the Big Top tent

FIRST HORSE SHOW
First Boston indoor horse show in twenty-eight years

JAMES MICHAEL CURLEY
Holds rally during campaign for mayor

1930

MODERN HOME SHOW

PROHIBITION MEETING
Rev. A.Z. Conrad, pastor of Park Street Church, presides over a meeting of the "drys"

1931

EVANGELIST AIMEE SEMPLE McPHERSON
Holds a nine-day series of revival meetings

FIRST RODEO

ALEPPO BALL
Shriners fundraiser attended by 51,000 people

FIRST PROFESSIONAL TENNIS EXHIBITION
Bill Tilden, in his professional debut, defeats Karel Kozeluk

1933

SIX-DAY BICYCLE RACE

FIRST BOSTON GARDEN B.A.A. TRACK MEET

GENERAL MOTORS AUTOMOBILE SHOW

1934

HUNTING AND FISHING SHOW
Featuring live forest animals roaming freely around the show floor, transplanted trees and shrubs, and an artificial lake big enough for a log-rolling competition

1935

WINTER SPORTS CARNIVAL
A five-story ski jump is constructed on Boston Garden ice

FIRST FOOTBALL GAME
Notre Dame Old-timers defeat the Collegian All-Stars

1936

SONJA HENIE
Ice skating champion makes Boston Garden debut

MIDGET AUTO RACES
First program of indoor automobile races staged on the East coast

1937

FIRST ICE FOLLIES
First troupe of professional figure skaters appear

1938

JAMES MICHAEL CURLEY
Holds rally during campaign for governor

LEVERETT SALTONSTALL
Holds rally during campaign for governor

RUDY VALLEE/BENNY GOODMAN SHOW

1939

FIRST WOMEN'S INDOOR BASEBALL GAME
Boston Olympets defeat the New York Roverettes

TOMMY DORSEY CONCERT

1940

PRESIDENT FRANKLIN D. ROOSEVELT
During presidential campaign holds rally attended by 25,000; his Boston Garden speech is broadcast nationally via radio

JOE LOUIS VS. AL McCOY

RODEO WITH GENE AUTRY
His first personal appearance in Boston

FIRST ICE CAPADES
Boston Garden's Walter Brown is one of group of arena managers responsible for the creation of this new ice show extravaganza

1941

AL JOLSON CONCERT/USO BENEFIT

ARTHUR FIEDLER AND THE BOSTON POPS ORCHESTRA
Concert and musical quiz benefit the Boston Symphony Orchestra Pension Fund

BOSTON HERALD-TRAVELER "GREAT AUTHORS" BOOK SHOW

1942

BOSTON POULTRY SHOW

ARMY-NAVY RELIEF SHOW ("HOLLYWOOD VICTORY CARAVAN")
Bob Hope, Claudette Colbert, Cary Grant, Laurel and Hardy, Desi Arnaz, James Cagney, Olivia de Havilland, and Groucho Marx highlight the star-studded evening

1943

MASSACHUSETTS INTERCOLLEGIATE HOCKEY TOURNAMENT

ANTI-NAZI RALLY
20,000 people gather to protest inhumane actions by the Nazis

1944

RODEO WITH ROY ROGERS

GRACIE ALLEN-GEORGE BURNS
Combine efforts with Governor Leverett Saltonstall for the Greater Boston War Fund Drive

FIRST INTERCOLLEGIATE BASKETBALL GAME
Bates College defeats Union College and Morehead State defeats LaSalle College in this inaugural doubleheader

1945

JIMMY DURANTE, SERGE KOUSSEVITZKY, AND THE BOSTON SYMPHONY ORCHESTRA
Combine efforts for the United War Fund

1946

FIRST PROFESSIONAL BASKETBALL GAME
Boston Celtics debut against the Toronto Huskies

1948

NEW ENGLAND FOODS EXPOSITION

PERRY COMO CONCERT

EAMON DE VALERA
Irish prime minister addresses 10,000 at Boston Garden

THOMAS E. DEWEY
Holds rally during presidential campaign

1949

SIR WINSTON CHURCHILL
British prime minister addresses the M.I.T. Mid-Century Convocation in a speech broadcast live on television

MILTON BERLE
Fundraiser held to build a Catholic Youth Center in the North End

FIRST APPEARANCE OF THE HARLEM GLOBETROTTERS

1950

EVANGELIST BILLY GRAHAM
Holds a two-day revival

JACK BENNY SHOW

1951

ROCKY MARCIANO VS. FREDDIE BRESHORE
Marciano (Brockton) knocks out Breshore in the fourth round in this heavyweight bout

DUKE ELLINGTON CONCERT

1952

RODEO WITH CISCO KID

GENERAL DWIGHT EISENHOWER
Holds an election eve rally; his speech is broadcast via radio and television

1953

BISHOP FULTON SHEEN
40,000 people jam Boston Garden to hear Bishop Sheen speak at the conclusion of the five-day World Mission Exhibit

BISHOP JOHN J. WRIGHT
Conducts Mass for world peace

1954

LIBERACE CONCERT

FIRST BOSTON GARDEN BEANPOT HOCKEY TOURNAMENT
Boston College, Boston University, Harvard College, and Northeastern University compete

1955

JOHNNY SAXTON VS. TONY DE MARCO
DeMarco (North End) upsets Saxton to capture the World Welterweight title

1957

GUY LOMBARDO CONCERT

FIRST NBA WORLD CHAMPIONSHIP
Boston Celtics defeat St. Louis Hawks in best-of-seven series

FIRST BOSTON GARDEN ECAC HOCKEY TOURNAMENT
Cornell defeats Boston University

1958

RUSSIAN BALLET MOISEYV DANCE COMPANY

1959

RODEO WITH ARTHUR GODFREY

POLISH STATE FOLK BALLET

1960

JOHN F. KENNEDY
Holds the largest political rally in the state's history on election eve in his bid for the presidency; attendance was 20,000 inside, while an overflow crowd of 100,000 stood outside

1961

JUDY GARLAND CONCERT

JOEY GIARDELLO VS. JOE DeNUCCI
Giardello and DeNucci (Newton) fight to a draw in this middleweight bout

1964

THE BEATLES CONCERT

1967

FIRST ROLLER DERBY

ISRAEL BOND RALLY

1968

CAVALCADE OF STARS
Fundraiser for rebuilding Blinstrub's, nationally reknowned nightclub

VIENNA'S LIPIZZANA HORSES/SPANISH RIDING SCHOOL

1969

PEGGY FLEMING
Olympic and World Champion guest stars with Ice Follies

MASONIC NIGHT

1970

JOHNNY CASH CONCERT

FIRST DISNEY ON PARADE CONCERT

1971

LAWRENCE WELK CONCERT

AMERICAN HOCKEY LEAGUE BOSTON DEBUT
Boston Braves debut against Cleveland Barons

ELVIS PRESLEY CONCERT

1972

WORLD HOCKEY ASSOCIATION BOSTON DEBUT
New England Whalers defeat Philadelphia Blazers

1974

FRANK SINATRA CONCERT

OLGA KORBUT AND THE RUSSIAN GYMNASTS

BEACH BOYS CONCERT

ELTON JOHN CONCERT

1975

FIRST PROFESSIONAL LACROSSE GAME
Boston Bolts bow to Long Island Tomahawks

THE ROLLING STONES CONCERT

1976

BOSTON BRUINS VS. SOVIET RED ARMY TEAM

DOROTHY HAMILL
Olympic and World Champion guest stars with Ice Capades

1977

GRAND OLE OPRY
Twenty Opry acts from Nashville conduct a concert broadcast on forty radio stations

WRKO RADIO CHRISTMAS CONCERT

1980

BRUCE SPRINGSTEEN CONCERT

1981

CELEBRITY SPORTS CARNIVAL
Benefit for the Special Olympics

AVON CHAMPIONSHIPS OF BOSTON
Chris Evert Lloyd wins the tournament and $25,000 first place prize

MARVELOUS MARVIN HAGLER VS. FULGENCIO OBELMEJAIS
Hagler (Brockton) defeats Obelmejais in his first defense of the World Middleweight title

1982

FIRST DISNEY'S WORLD ON ICE

1983

JIMMY SWAGGART'S RELIGIOUS CRUSADE

BOSTON COLLEGE UPSETS NATIONAL POWER GEORGETOWN
Big East Baskeball Championship

1984

OLYMPIC AND WORLD FIGURE SKATING TOUR
Scott Hamilton, Rosalyn Summers, Kitty and Peter Carruthers (Burlington), and others perform to a capacity crowd

US OLYMPIC GYMNASTICS TEAM
Springfield's Tim Dagett joins Olympic favorites Mitch Gaylord, Peter Vidmar, and Mary Lou Retton

US OLYMPIC GOLD MEDAL VOLLEYBALL TEAM

1985

JIMMY CONNORS VS. IVAN LENDL TENNIS MATCH

ROYAL MARINES & ARGYLL SUTHERLAND HIGHLANDERS
English Military Bands and Scottish Highlanders in a pageantry of music and dance

SESAME STREET LIVE
Television's children's program is filmed in stage presentation

1986

MARTINA NAVRATILOVA VS. CHRIS EVERT LLOYD TENNIS MATCH

BOB SEGER CONCERT

TORVILL & DEAN SKATING SPECTACULAR

1987

BAY STATE GAMES OPENING CEREMONIES

U2 CONCERT

EDDIE MURPHY IN PERSON

JOHN COUGAR MELLENCAMP CONCERT

1988

CATHOLIC MEMORIAL POWERS ITS WAY TO 3RD STRAIGHT SCHOOLBOY HOCKEY CHAMPIONSHIP

BOSTON SHOOTOUT
Championship game of nation's premier amateur basketball tournament to benefit the Boys and Girls Club of Boston

AID & COMFORT BENEFIT
Area restauranteurs and chefs join the American Institute of Wine and Food in an evening of celebration and exquisite dining on the arena floor in a benefit to fight AIDS

BOSTON GARDEN 60TH ANNIVERSARY PARTY
Eight-hundred celebrate Boston Garden's sixtieth birthday with dinner on the Arena floor followed by a special performance of the Boston Pops Esplanade Orchestra

NEW KIDS ON THE BLOCK CONCERT

NUTCRACKER ON ICE
The Nutcracker Sweet ballet is performed on ice

CELEBRITY HOCKEY CHALLENGE: BRUINS LEGENDS VS. HOLLYWOOD ALL-STARS
Over $400,000 is raised for area charities

1989

BOBBY BROWN CONCERT

CHURCH OF CHRIST WORLD MISSION
International convention attracts thousands of parishioners

MULTIPLE SCLEROSIS 3-ON-3 BASKETBALL BENEFIT

HOCKEY AND BASKETBALL OPEN HOUSE
The public gets their opportunity to slice the ice and play on the parquet floor

1990

BRUINS ADVANCE TO STANLEY CUP FINALS FOR SECOND TIME IN THREE SEASONS
Memorable five-and-a-half-hour opening game leaves fans and players emotionally drained

BOYS & GIRLS CLUB OF BOSTON COCKTAIL PARTY ON THE PARQUET

CELEBRITY BASKETBALL CLASSIC: HOLLYWOOD ALL-STARS VS. SPORTS LEGENDS

IV Historic Views

The following section photographically documents the historic views of the Boston Garden/North Station building and surrounding areas. The photographs are organized as follows:

- Views of the original railroad facilities on the site and vicinity prior to the construction of the Boston Garden/North Station building
- Construction of Boston Garden including interior and exterior views
- Promotional material associated with events held in Boston Garden
- Various views of the completed structure
- Photographs of key events held in Boston Garden since its beginning, including the first hockey game in 1928 and various political and religious rallies
- Interior views of the North Station terminal

Photographs were obtained from the following sources: Boston Public Library Print Department, Bostonian Society, Massachusetts Historical Society, New England Sports Museum, The Boston Globe, The Boston Herald, and the Boston & Maine Railroad Society. The cooperation of these organizations in making these photographs available and permitting their reproduction is greatly appreciated.

The following photographs are included in this section:

1. Boston & Lowell Railroad and Fitchburg Railroad Depots on Causeway Street - 1870
2. Union Station on Causeway Street - circa 1899
3. View of construction of the elevated Green Line on Causeway Street - circa 1900
4. Aerial view of Boston showing the Custom House as the highest structure - circa 1923
5. Demolition of Union Station facilities in preparation for construction of Boston Garden/North Station - 1928

6. Aerial view of Boston Garden under construction - 1928

7. Interior view of Boston Garden showing seating area under construction - 1928

8. Aerial view of completed Boston Garden showing south elevation - 1930

9.-11. Promotional Brochures advertising Boston Garden, circa 1929

12. Southern elevation of Boston Garden/North Station taken from the elevated Green Line tracks - 1936

13. Northern elevation of Boston Garden/North Station showing the train tracks, 150 Causeway Street and the Manger (Madison) Hotel - circa. 1930s

14. View of Boston Garden from the Charles River - circa. 1940s

15. Aerial view of Boston Garden looking north, showing the Central Artery under construction - 1954

16. Aerial view of Boston Garden looking south - 1957

17. First hockey match at Boston Garden/first event - 1928

18. Gipsy Smith religious revival meeting - 1929

19. Mayor Curley gubernatorial election rally - 1938

20. Dewey presidential campaign rally - 1944

21. Interior of arena set up for boxing match - 1968

22. Ringling Brothers Circus

23. Setting up parquet floor for basketball - 1981

24. Boston Celtics World Championship Celebrations - 1986

25. Circus performers in front of Boston Garden

26. Interior view of original North Station lobby - circa 1940

27. Sketch of original North Station lobby and seating area - 1940

28. North Station ticketing area - circa 1970

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

Boston & Lowell Railroad/
Fitchburg Railroad Depots -
Causeway Street, 1870

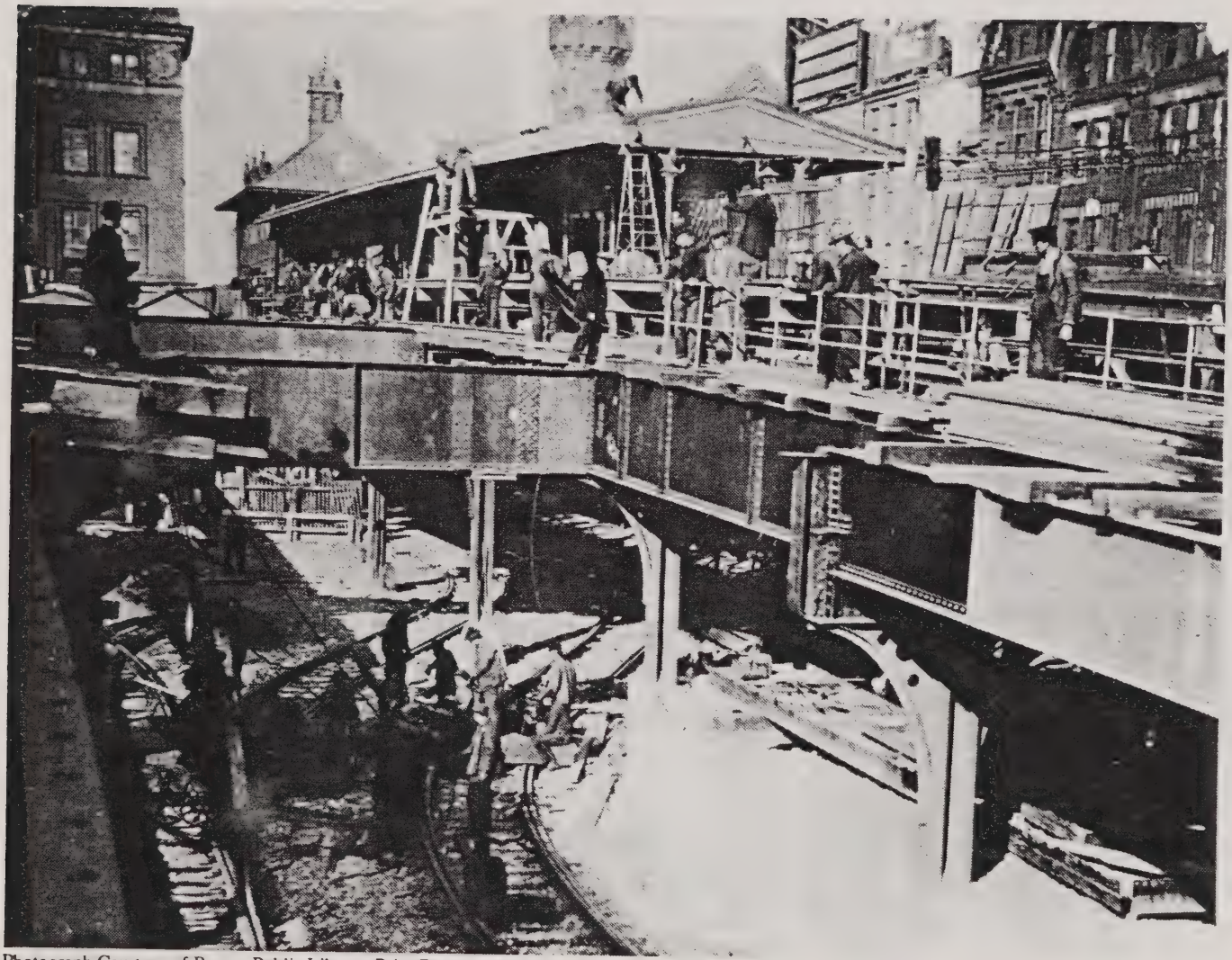
Figure IV-1

Photograph Courtesy of Boston Public Library, Print Department.

Vanasse Hangen Brustlin, Inc.

Union Station on Causeway Street, circa 1899

Figure IV-2



Photograph Courtesy of Boston Public Library, Print Department.

Vanasse Hangen Brustlin, Inc.

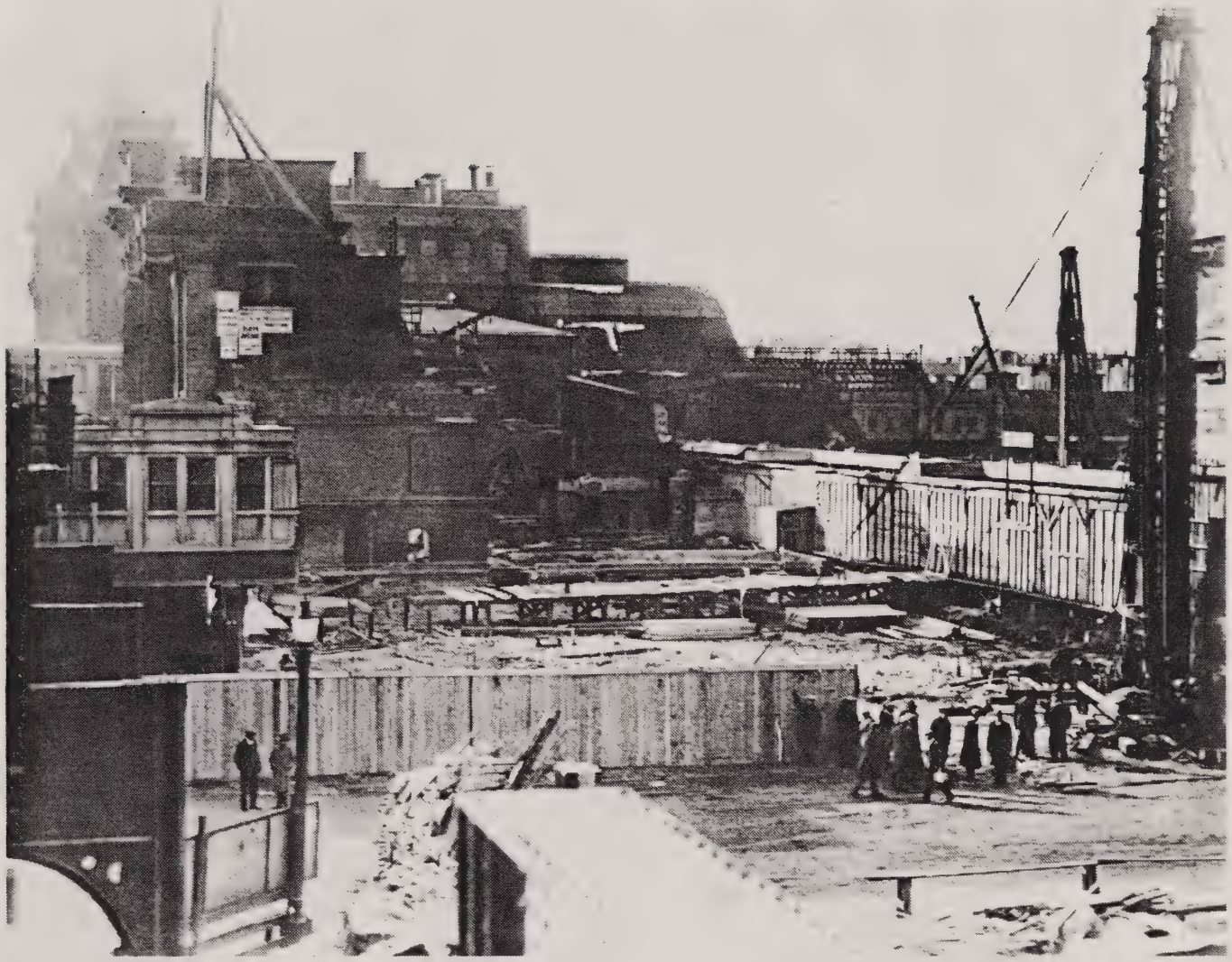
Construction of the Elevated Green Line on Causeway Street, circa 1900

Figure IV-3

Photograph Courtesy of the Massachusetts Historical Commission.

Vanasse Hangen Brustlin, Inc.

Aerial View of Boston, circa 1923 Figure IV-4



Photograph Courtesy of The Bostonian Society.

Vanasse Hangen Brustlin, Inc.

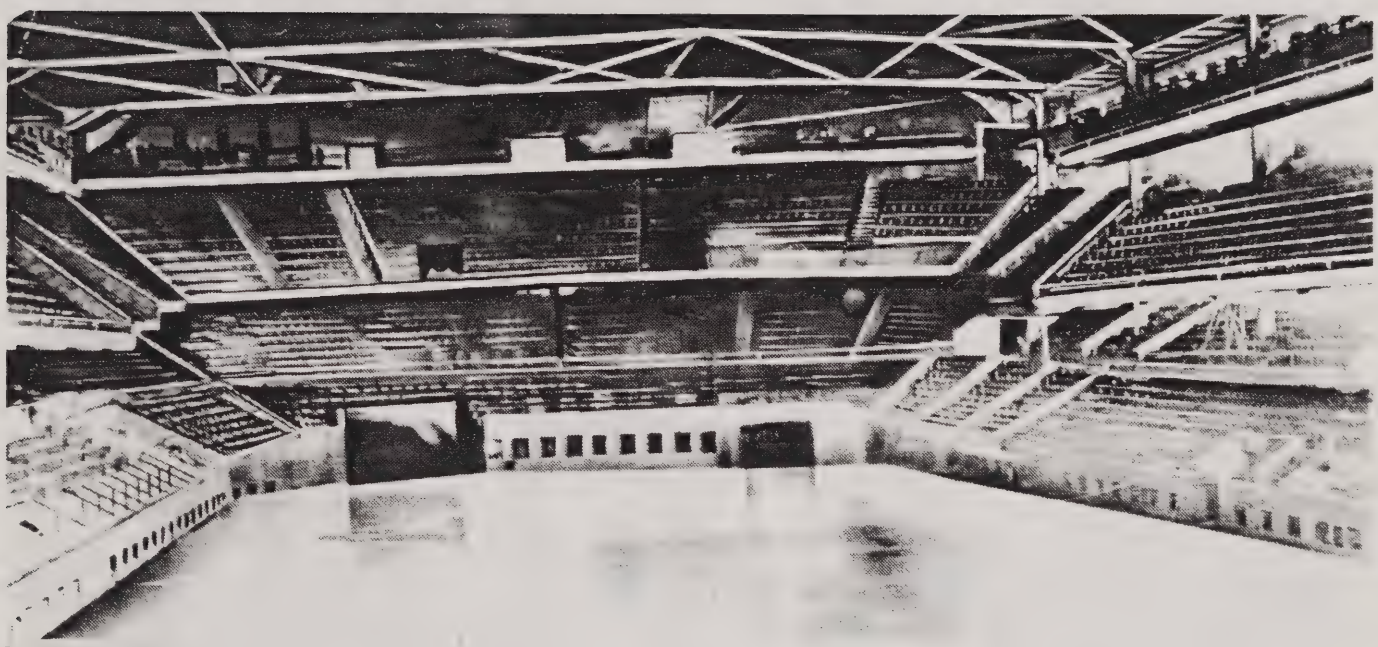
Demolition of Union Station, circa 1927 Figure IV-5

Photograph Courtesy of the Massachusetts Historical Society.

Vanasse Hangen Brustlin, Inc.

Aerial View Showing Boston Garden Under Construction, 1928

Figure IV-6



Photograph Courtesy of The Boston Globe.

Vanasse Hangen Brustlin, Inc.

Interior of Boston Garden
Under Construction

Figure IV-7

Photograph Courtesy of Boston Public Library, Print Department.

Vanasse Hangen Brustlin, Inc.

Aerial View of Boston Garden, 1930 Figure IV-8

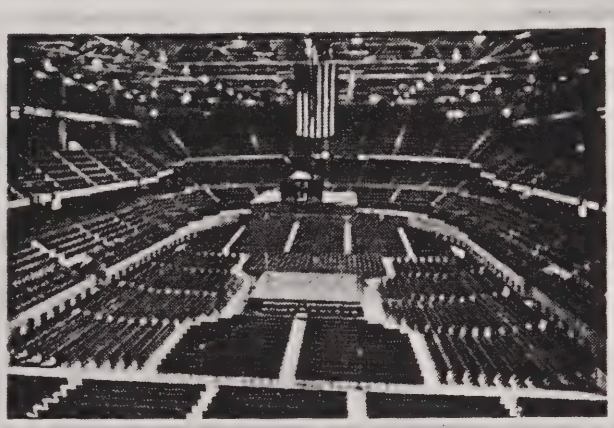
Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Promotional Material for
Boston Garden, 1928

Figure IV-9

BOSTON MADISON SQUARE GARDEN



Built especially for an outdoor and exhibition purposes of many sorts.

70,000 square feet of floor space.

Auditorium and two Exposition Halls—which can be used separately or collectively.

Rates depend on the portion of the building used and the time desired.

BOSTON MADISON SQUARE GARDEN is one of the most magnificent auditoriums in the world and is equipped to handle the greatest national events.

The Auditorium

Gross area 26,730 square feet (110' x 243'). Has a maximum capacity of 20,000 persons.

Seats are arranged in stadium form with one large balcony extending completely around the building, and upper balcony on the two sides. Every one seated can have an unobstructed view.

Entrance to the *Garden* is by 12-foot ramps from the street floor, and 13-foot stairways. Modern acoustical conditions, up-to-date lighting and ventilating facilities.

Has spacious lobbies, ample ticket office facilities, lounges and rest rooms.

Exposition Hall

Connected with the *Garden*, or can be used separately.

Floor area 110' x 385'; gross area 42,350 square feet.

Admirably laid out for exhibition purposes.

Located over the North Station [illegible] and has direct connection with all transportation [illegible] lines. Illness of [illegible] within the city.

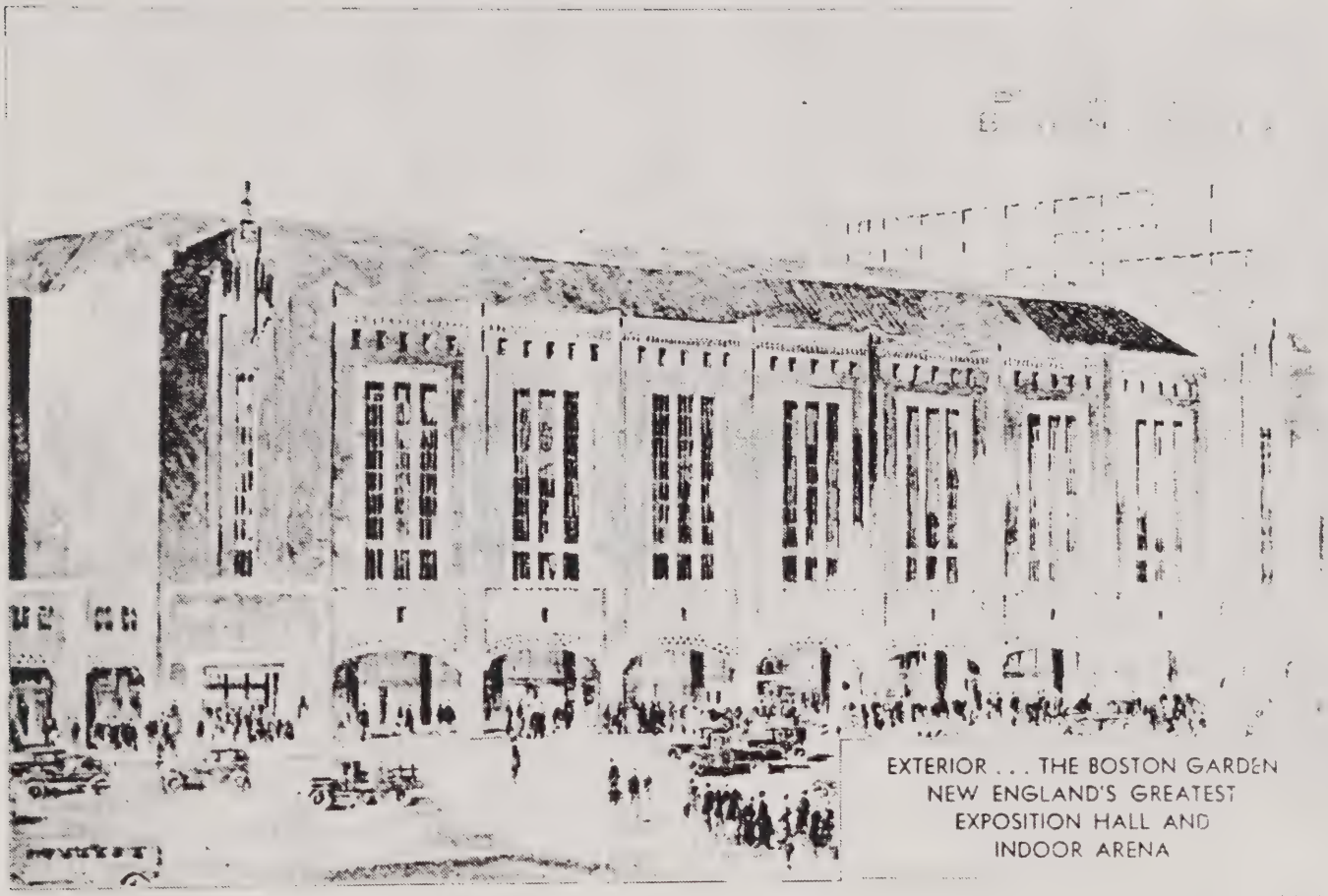
Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Promotional Material for
Boston Garden, 1928

Figure IV-10

THE BOSTON GARDEN



Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Promotional Material for
Boston Garden, 1928

Figure IV-11

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

South Elevation of the Boston Garden/ North Station Building from Elevated Green Line

Figure IV-12

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

Boston Garden, circa 1930's

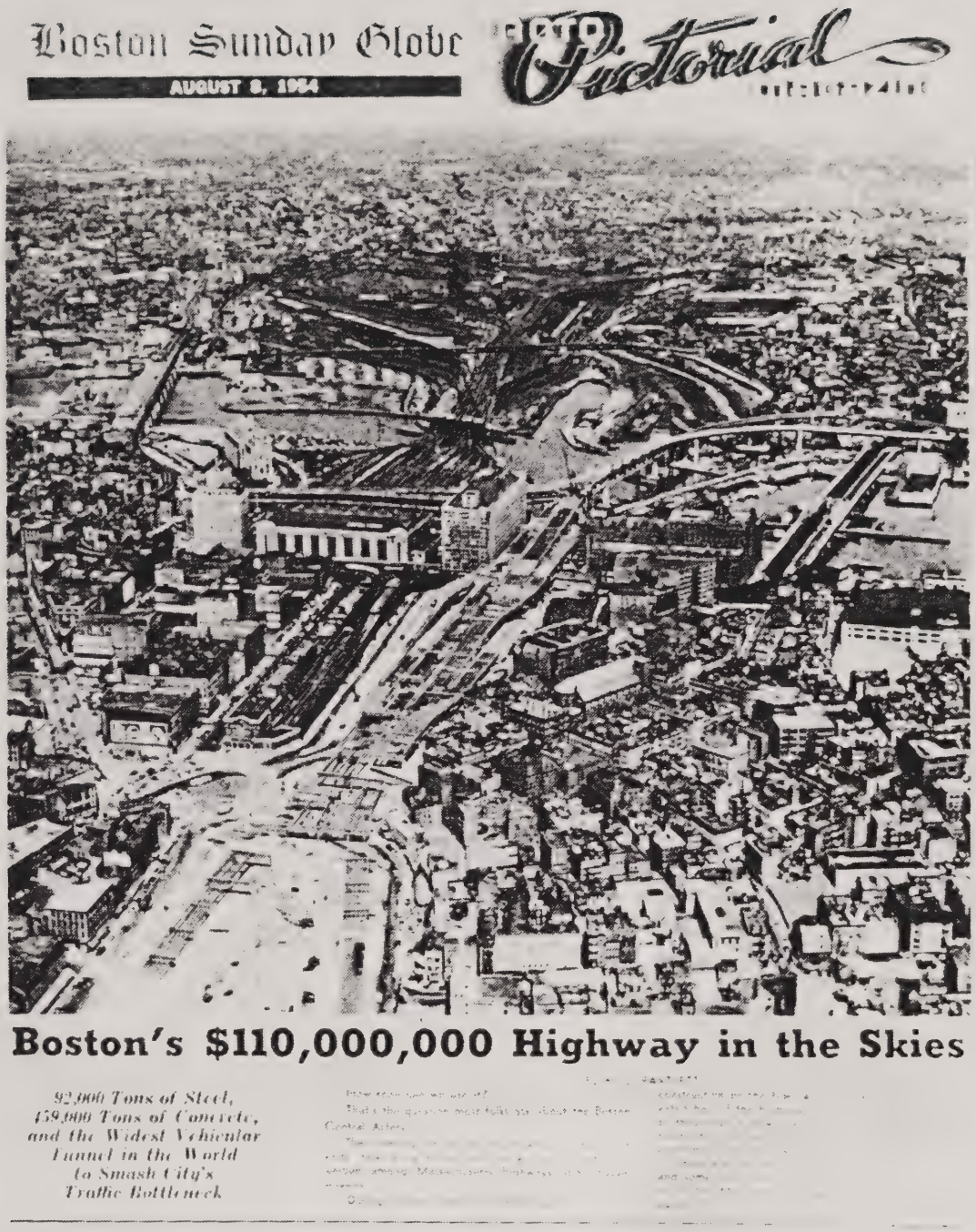
Figure IV-13

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

View of Boston Garden from Charles River, circa 1940's

Figure IV-14



Photograph Courtesy of The Boston Globe.

Vanasse Hangen Brustlin, Inc.

Aerial View of Boston Garden, 1954
(Note Central Artery Under Construction)

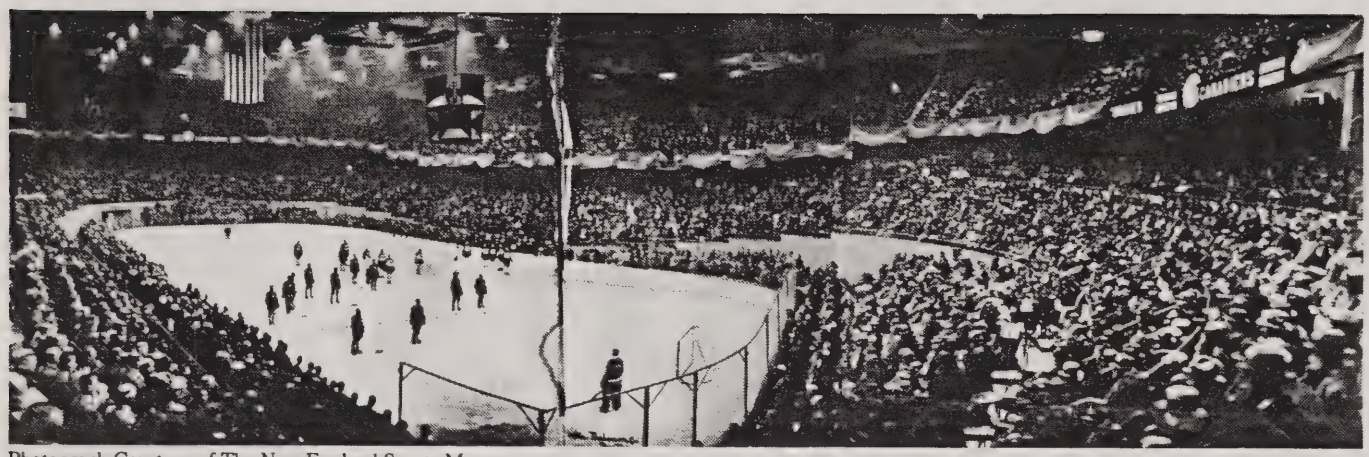
Figure IV-15

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

Aerial View of Boston Garden
Looking South, 1957

Figure IV-16



Photograph Courtesy of The New England Sports Museum.

Vanasse Hangen Brustlin, Inc.

First Hockey Match at
Boston Garden, 1929

Figure IV-17

Photograph Courtesy of The Boston Globe.

Vanasse Hangen Brustlin, Inc.

Gipsy Smith Religious Revival Meeting, 1929

Figure IV-18

Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

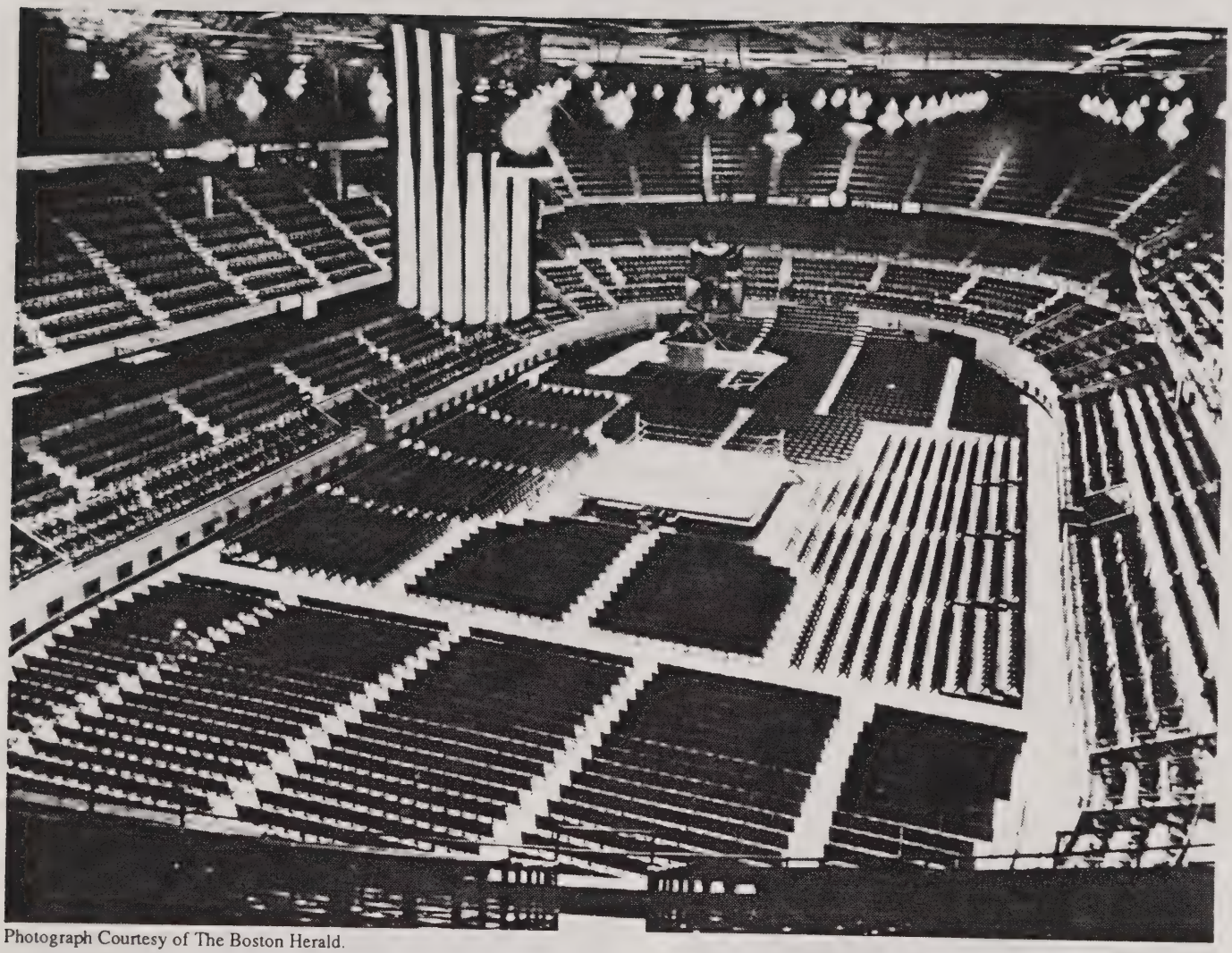
Mayor Curley Gubernatorial Election Rally, 1938

Figure IV-19

Photograph Courtesy of The New England Sports Museum.

Vanasse Hangen Brustlin, Inc.

Dewey Presidential Campaign Rally, 1944 Figure IV-20

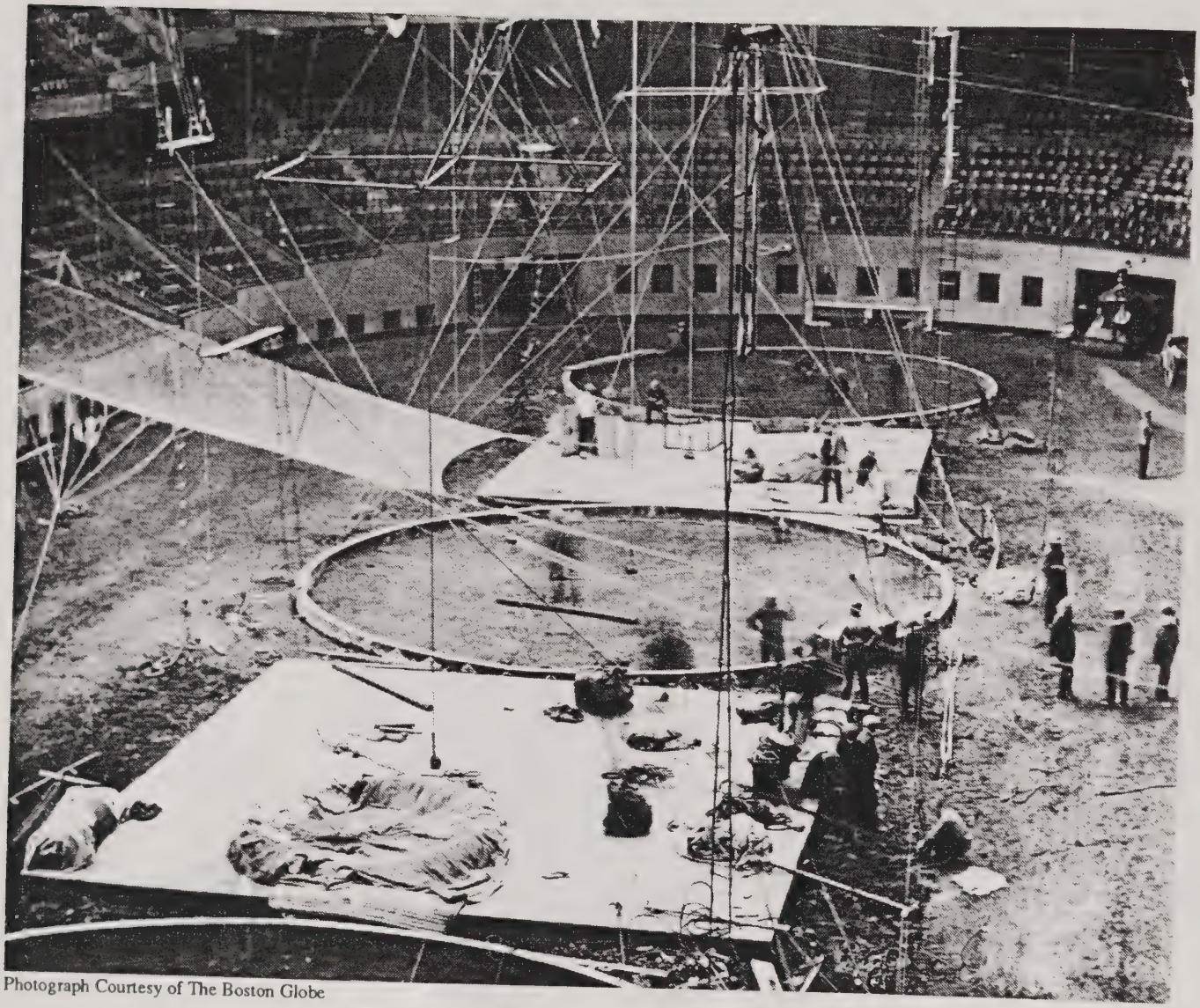


Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Interior of Boston Garden
Set Up for Boxing Match, 1968

Figure IV-21



Photograph Courtesy of The Boston Globe

Vanasse Hangen Brustlin, Inc.

Ringling Brothers Circus
Setting Up in Boston Garden

Figure IV-22

Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

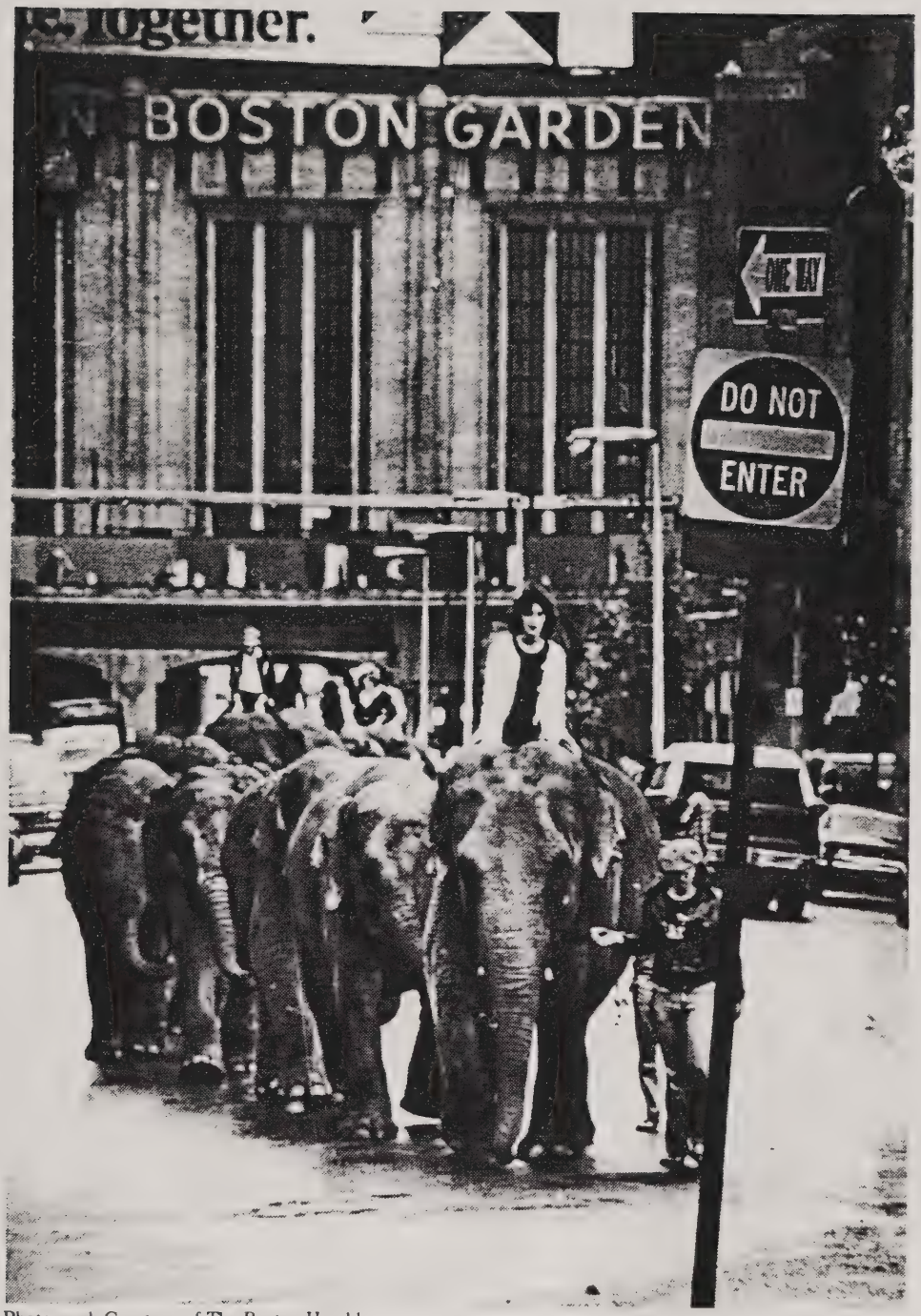
Setting Up Parquet Floor for Basketball Figure IV-23

Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Raising of Boston Celtics 1986 World Championship Banner

Figure IV-24



Photograph Courtesy of The Boston Herald.

Vanasse Hangen Brustlin, Inc.

Circus Performers in Front of Boston Garden

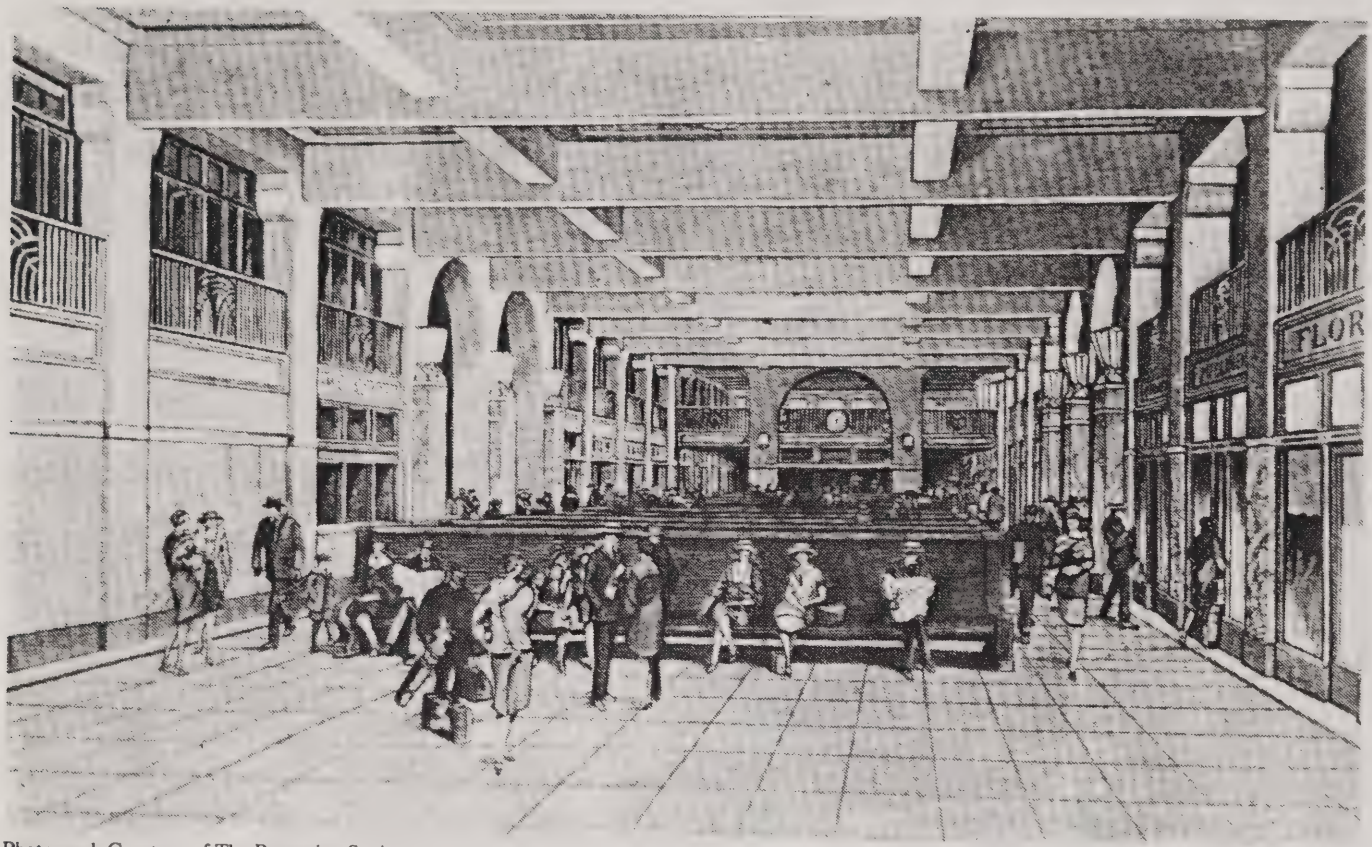
Figure IV-25

Photograph Courtesy of The Boston & Maine Railroad Society

Vanasse Hangen Brustlin, Inc.

Interior View of Original North Station Lobby, circa 1940

Figure IV-26



Photograph Courtesy of The Bostonian Society.

Vanasse Hangen Brustlin, Inc.

Interior View of Original North Station Lobby, circa 1940

Figure IV-27

Photograph Courtesy of The Boston Herald

Vanasse Hangen Brustlin, Inc.

North Station Ticketing Area

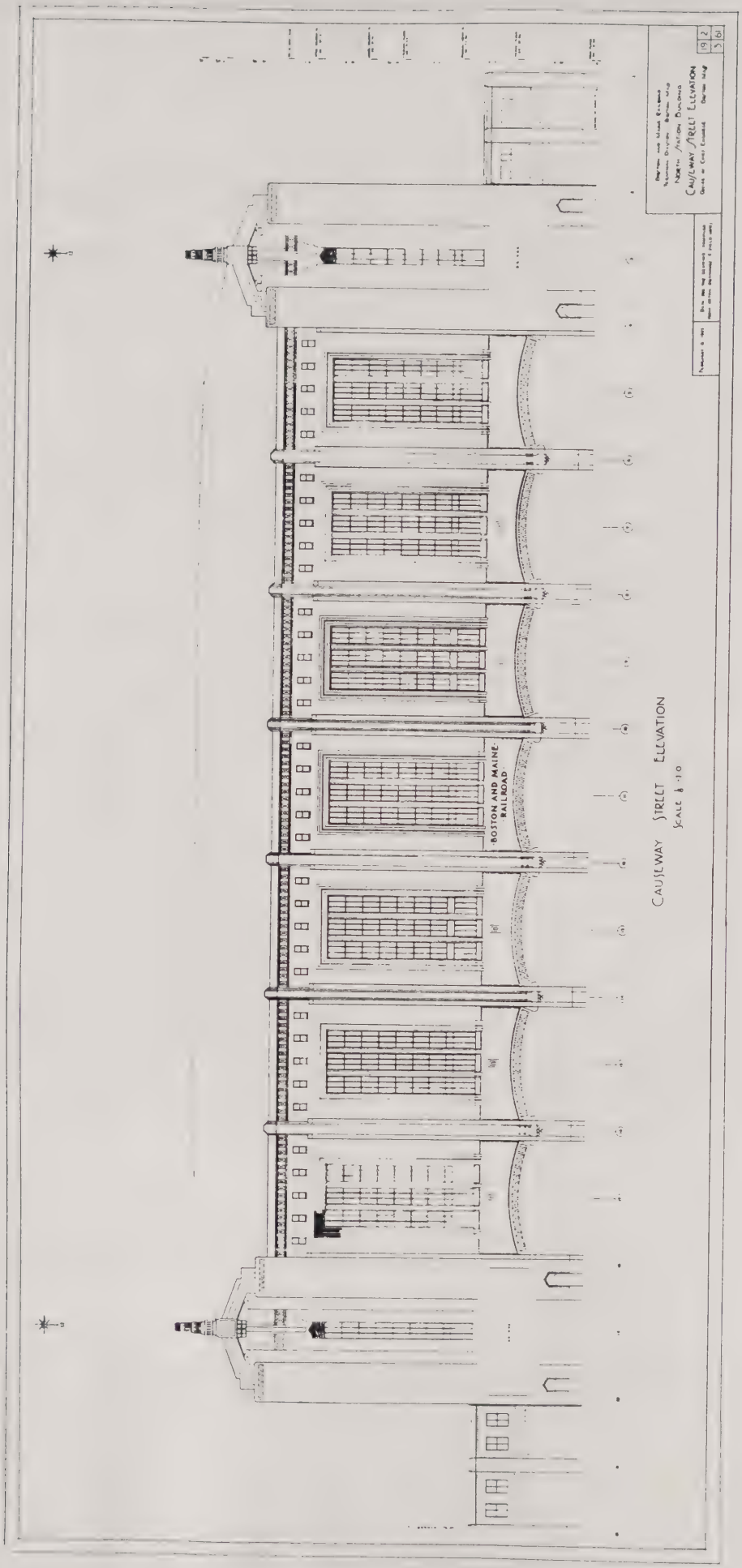
Figure IV-28

V Copies of Original Plans

A complete set of original plans of the Boston Garden/North Station building is not available. Research was conducted at the Boston Public Library which is the repository for all City of Boston plans submitted before the 1940s. No plans for the building were located in the library storage house. However, an incomplete set of plans was found in New Boston Garden Corporation records. These plans are in generally poor condition. A copy of the original ground floor plan and elevations of the building are included in this section. The following plans are available, but could not be copied photographically:

- First floor and second floor plan of the Boston & Maine Terminal Building - April 14, 1928
- Detail of lower balcony seating
- Roof plan
- North Station ground floor plans - three portions
- Side and rear elevations showing fire escapes
- Upper and lower balcony plans
- Stadium seating plan
- North elevation
- Various construction drawings
- Various detail plans

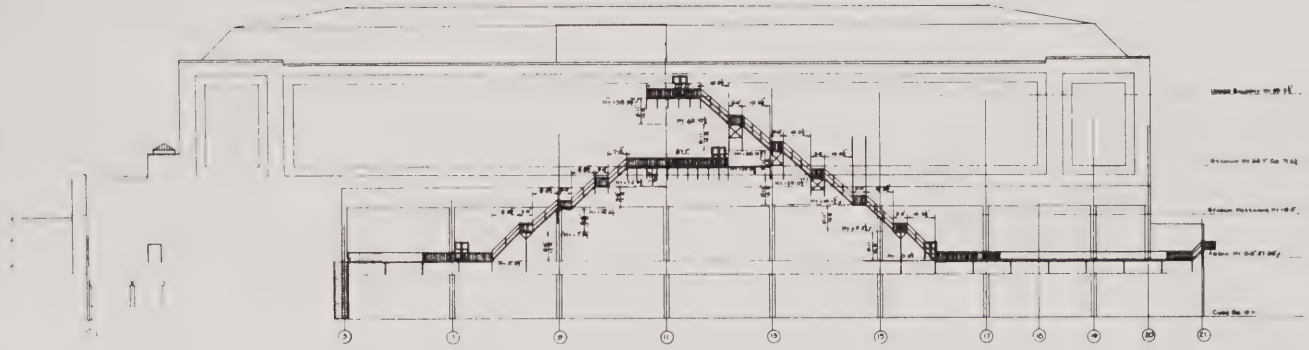
If the reviewer wishes to see the original copies of these plans, these can be made available. Additional plans are in the possession of the proponent's structural engineer.



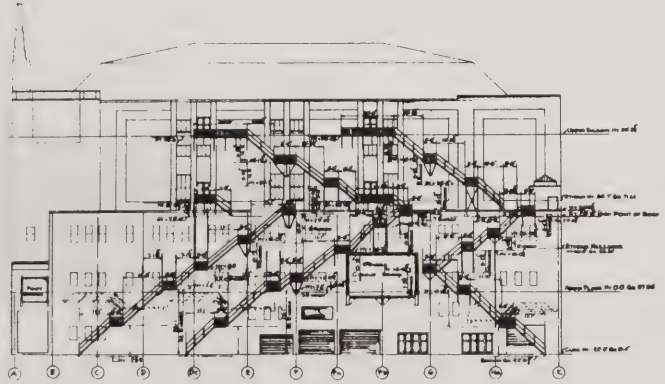
V 2 Copies of Original Plans

2864H678

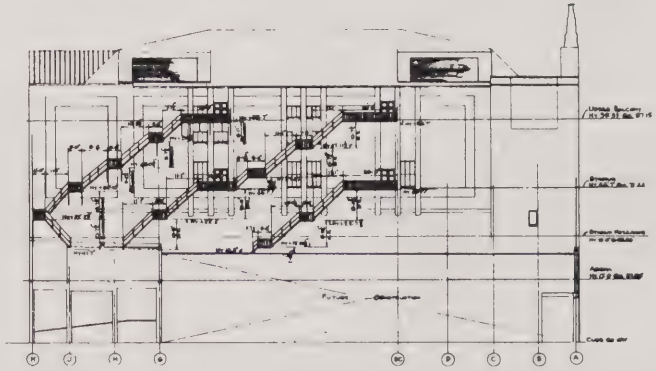
V 3 Copies of Original Plans



NORTH ELEVATION



HAVERHILL ST. ELEVATION



WEST ELEVATION

Note:

BOSTON & MAINE RAILROAD

FIRE ESCAPES - SIDES & REAR ELEV

2864H678

PLAN AT ARENA FLOOR
2864-H125

VI Architectural and Engineering Data

The following article in the Engineering News-Record (February 28, 1929) summarizes the architecture and engineering of the Boston Garden/North Station building.

Old North Station at Boston Replaced by a Modern Structure Including a Coliseum

Former Station Kept in Operation During Construction—Terminal Facilities Concentrated on Ground Floor and Mezzanine Under Coliseum—Unusual Structure Features Involved in Design

By W. E. Belcher
Designing Engineer, Dwight P. Robinson & Company, Philadelphia, Pa.

FIG. 1—LOOKING TOWARD THE STREET FROM THE WAITING ROOM
The full height of the station, main floor and mezzanine, is shown in this picture.

THE recently dedicated North Station of the Boston & Maine in Boston is unique in the utilization by the railroad company of the "air rights" above the station for the construction of a large coliseum practically identical with the present Madison Square Garden in New York City. Within a total height of 22 ft. from the station floor to the arena floor has been developed a modern passenger terminal station affording complete station facilities adequate for approximately 80,000 passengers per day. Above the arena floor level the coliseum construction, of an entirely different type, rises an additional height of 95 ft. The coliseum is connected with the station only through wide exit ramps at either end, these ramps forming an easy interchange for the public between the elevated railway stations, the arena floor level and the station floor level.

The general location of the North Station development is indicated on the accompanying plot plan (Fig. 2) covering the area between Beverley St. and Nashua St. and between Causeway St. and the Charles River. The station building herein described has a frontage on Causeway St. of 440 ft. with a depth of 170 ft. from the curb line to the train gates. The coliseum above has a length of 360 ft. with a depth of 205 ft., extending back over the train area about 35 ft. beyond the train gates. As the trains are steam operated, it was considered that the disposal of locomotive gases would present a serious problem if the building were to extend any farther out over the tracks, and this fact limited the width of the coliseum.

A three-story building 35x205 ft. along the Haverhill St. end is devoted to baggage space on the ground floor and offices and clubrooms for the Boston Madison Square Garden Corporation on the second and third floors.

In order to improve access by automobile to the building the city has purchased from the railroad company 35 ft. to be added to the width of Causeway St. and 52 ft. to be added to the width of Nashua St., making these streets 110 ft. and 92 ft. wide, respectively, which will greatly improve the approaches to the station.

The waiting room is approximately 40x260 ft. and the concourse 60x440 ft. Station facilities on the ground floor include the train announcement boards, ticket offices, information bureau, Western Union Telegraph Company, travelers' aid, parcel check room, baggage check room, express office, telephone room, New England States Exhibition spaces and various stores and rentals. On the mezzanine floor are located the ticket accounting office, travel bureau, Pullman office, Boston & Maine Transportation Company, motion picture display rooms, toilet and rest rooms, barber shop, beauty parlor and other rental spaces.

The coliseum above the railroad station has a seating capacity of approximately 18,000 for boxing events and 14,500 for hockey. The main arena floor is 110 ft. wide

and 245 ft. in length, on which ice can be formed when required. The seats are arranged around this arena in stadium form with one large balcony extending completely around the building and with an upper balcony along each side of the building. Ample stairways and exits at each corner of the coliseum provide full facilities, as required for theater construction, on the basis of 20 ft. in width for each 100 persons for whom seats are provided. In addition to these stairs, fire escapes are accessible from all levels.

Foundations—The site of the station was originally an arm of the Charles River, which extended beyond Haymarket Square. A dike was first built along the present line of Causeway St., cutting off this arm of the river. This was filled in about the year 1830 from material secured from the leveling down of Beacon Hill. Exploration for the foundations disclosed the depth of this fill and the underlying harbor bottom, below which very satisfactory bearing strata occur. A typical boring and pile record side by side are shown in Fig. 3.

The wood piles under the former Boston & Maine station, built in 1893, were found to be in excellent condition when uncovered, the tops of these piles being at El. 7 above mean low water. The builders of this earlier station used extensively huge granite blocks from adjacent quarries, and the split face on the under side of these blocks accurately fitted the top of the wooden piles without the use of mortar or concrete. The old sea walls, dock walls and other underground obstructions greatly increased foundation difficulties. The amount of rock excavated exceeded the amount of earth.

The presence of the underground obstructions necessitated special footing design to meet the conditions, which is indicated on the accompanying Fig. 4, showing the outline of the finished footings. In designing these footings where obstructions occurred the location of the piles as first driven formed the basis for locating the remaining piles in each footing in order to balance the center of the pile group, and on the basis of driving records footings were designed to suit actual conditions. Concrete piles with cast-iron bases were used, carrying an allowable maximum load of 30 tons each without reinforcement. Tests of completed piles showed settlements of approximately $\frac{1}{8}$ in. at 20 tons load, $\frac{1}{4}$ in. at 40 tons load and $\frac{3}{8}$ in. at 60 tons load.

The location of the old rubble stone slip wall is shown on the plan, and through the center of this old slip an existing 5 ft. sewer had to be maintained. It was practically impossible to remove this old slip wall, as it could not be sheeted off in sections, no piles could be driven through it and to take it out meant excavating very large areas by clamshell, greatly disturbing the surrounding ground. Footings for one line of columns at the north of the building were placed after excavating a section of the wall, but elsewhere footings were bridged across the wall and sewer where necessary.

The firm of Charles T. Main, Inc., was called in as consulting engineer on the foundation work.

Structural Steel—The station portion of the building required approximately 1,200 tons and the remainder 2,700 tons of structural steel. As far as possible the new Carnegie beam sections were used not only for columns, beams and girders but for truss members and bracing.

The station steel was first erected and the concrete arena floor placed, which served as a working floor for the erection of the coliseum. Columns rest in all cases on steel billets which are grouted above the concrete piers.

Above the arena floor the wind pressure is carried to the bottom chord level and to the arena level by the columns in each bent. The bottom chord of the

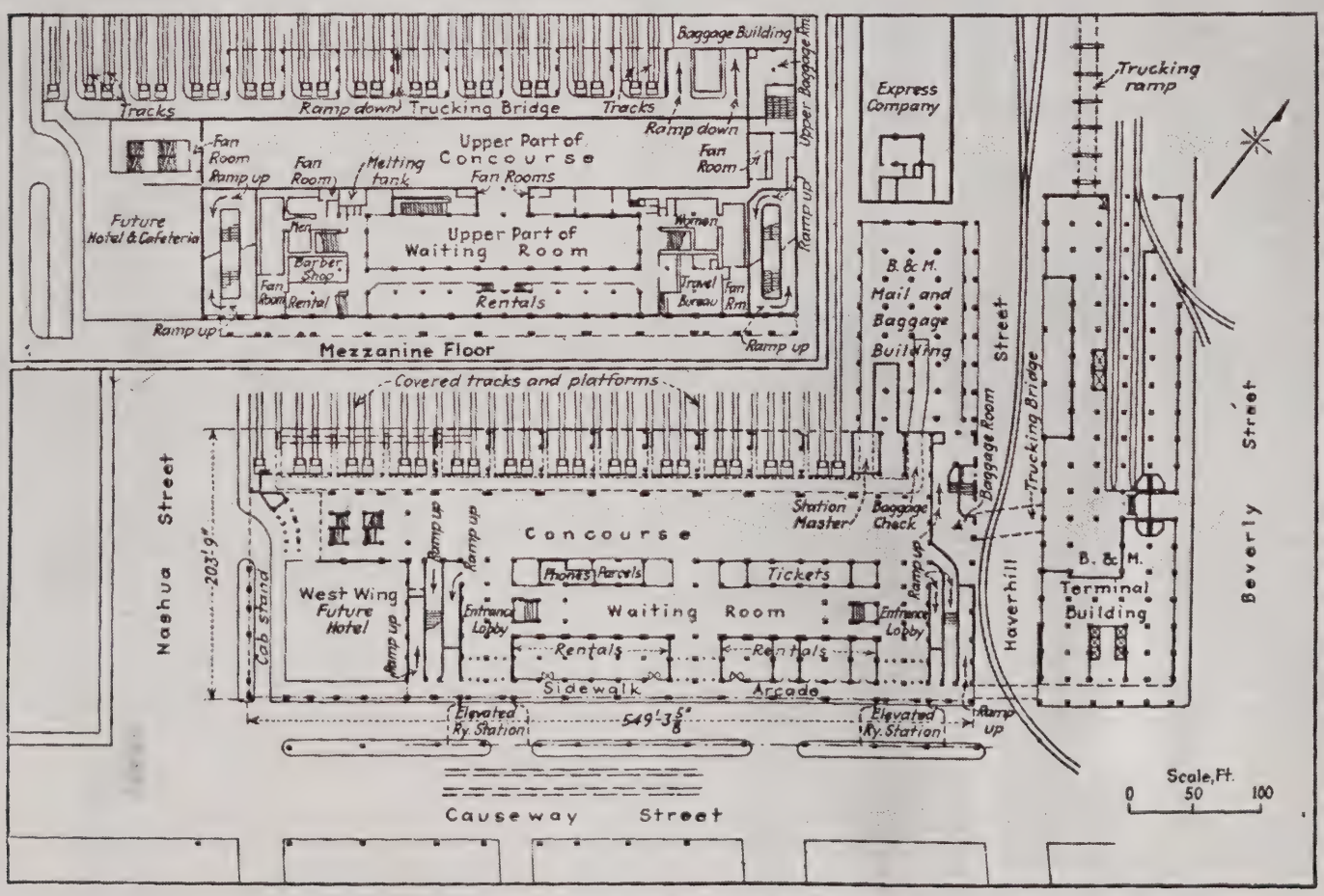


FIG. 2—PLAN OF BOSTON NORTH STATION

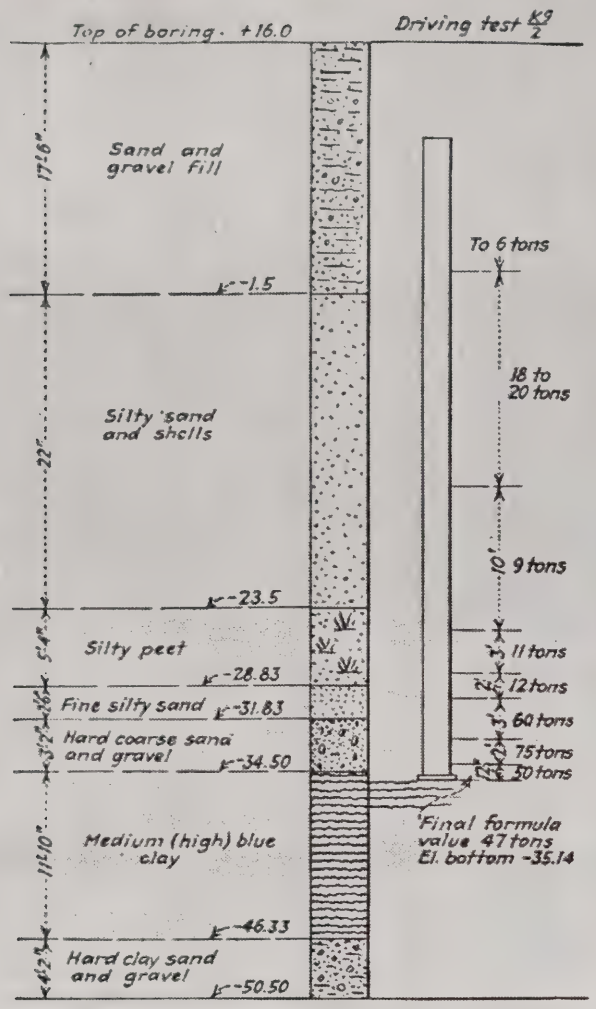


FIG. 3—SOIL BORING AND TYPICAL PILE RECORD

roof is braced along both sides and both ends so that all of the wind pressure taken at this level can be carried to the ends of the building, where the vertical bracing is adequate to take the wind load down to the arena floor. The concrete ramp walls at each end of the building absorb the wind pressure at this level. The stiffness of the seat banks after installation undoubtedly replaces the horizontal bracing to a large extent, but this was not considered in the design.

The spacing of the main columns 40 ft. on centers was practically dictated by the necessity of locating these columns in the platforms between passenger tracks, each platform serving two tracks. The baggage ramps are 5 ft. 6 in. in clear width, with a 7 per cent grade, located in the center of each platform. These ramps connect to a baggage runway over the train gates along the head of the tracks, handling baggage to and from the baggage room at the east end without interfering with passenger traffic. The main columns are located at the side of each ramp.

The 40-ft. spacing between roof trusses is spanned by 24-in. beams about 18-ft. centers. These carry at the third points 12-in. rafters, which in turn carry at their third points 6-in. purlins on 6-ft. centers. The total weight of roof steel with this design, including the walkways and bracings, is less than 20 lb. per sq.ft.

Design Loadings—The live loads used in the design are those specified in the Boston code for "assembly halls," a ruling as to the classification of this building having been obtained from the Building Department before commencing the design. The live load in general is 100 lb. per sq.in., covering passageways, stairs, foyers, halls and all of the seat banks. No allowance for live load reduction is made for this load in the design of floor beams, girders or trusses. A reduction is used in the column stresses as follows:

Carrying two floors, 25 per cent live load reduction
Carrying three floors, 40 per cent live load reduction
Carrying four floors, 50 per cent live load reduction

It was felt that where fixed seats occur such as in this case the specified live load was about double the probable maximum and that smaller requirement should have been permitted throughout the design. To open up the question, however, would have brought in the design of theater balconies and seating areas in general, including those where the fixed condition of the seats would be an open question. On this account it was thought unwise to ask for special ruling on this loading. Each seat occupies a width of 17 or 18 in. and a depth of 30 in.

The live load on the floors of offices, toilets, etc., is 60 lb. per sq.ft.

The construction of the arena floor to allow for the manufacture of ice involved a special allowance for both live and dead loads. This floor consists of the supporting slab reinforced both ways, on which 10 in. of patented floor construction is used, in which the refrigerating pipes are embedded. The total load on columns and girders from this construction is as follows:

Live load	100 lb. per sq.ft.
Concrete supporting slab	96 lb. per sq.ft.
Fireproofing of girders	11 lb. per sq.ft.
Structural steel	23 lb. per sq.ft.
Special ice floor	60 lb. per sq.ft.
Total	290 lb. per sq.ft.

To allow for concentrated loads to be expected when used for circuses the slabs and beams are designed for heavier live loads.

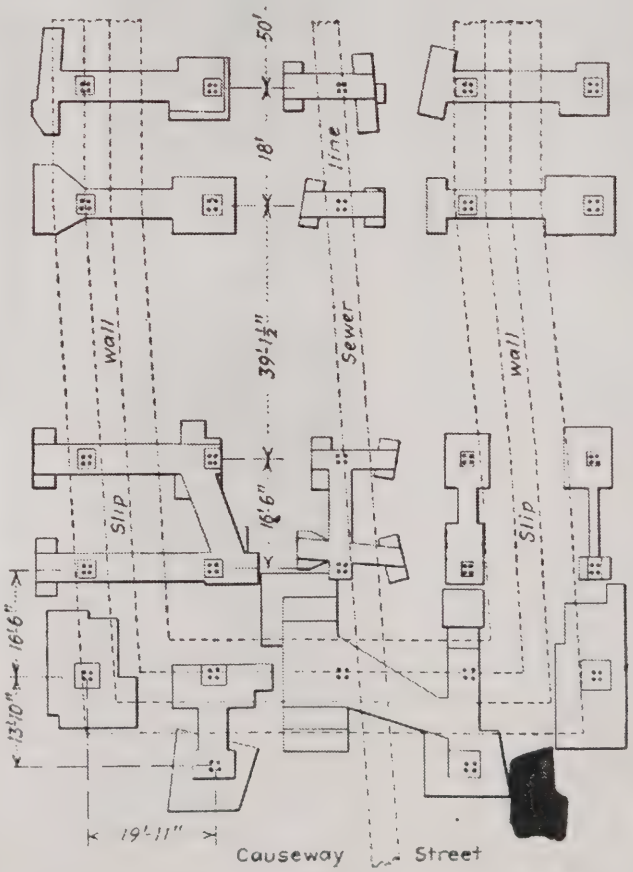


FIG. 4—OUTLINE PLAN OF PART OF FOUNDATION
Showing way in which footings had to be fitted around subsurface structures.

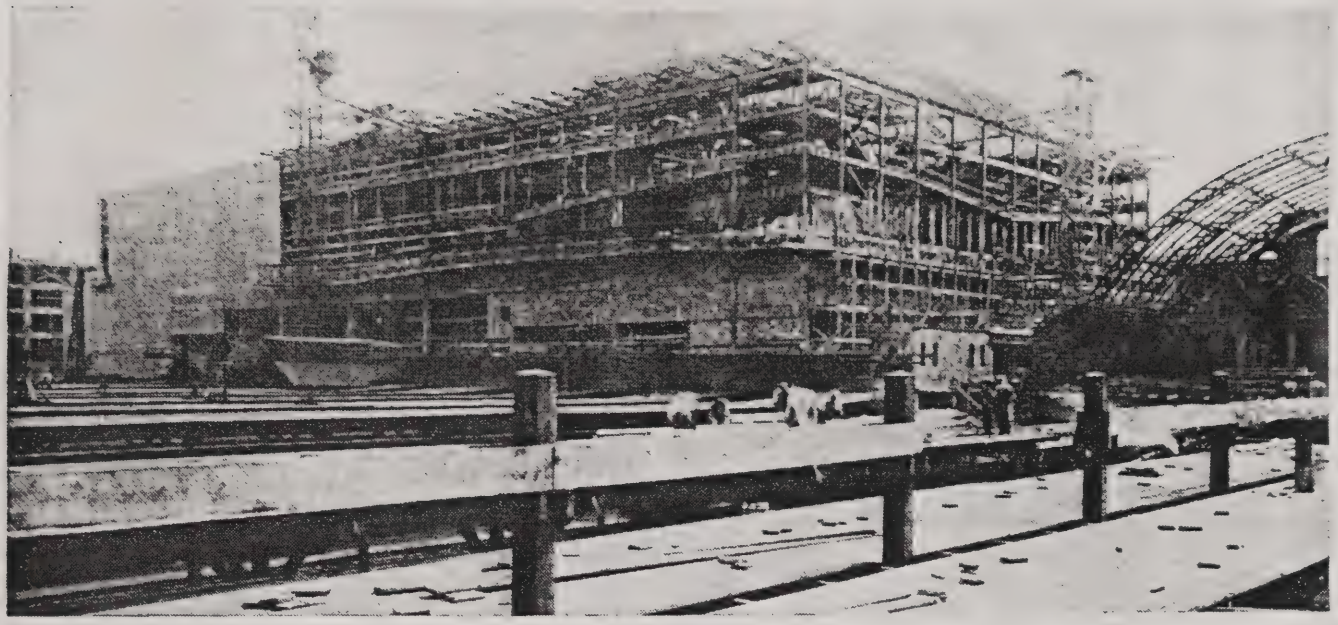


FIG. 6—REAR VIEW OF COLISEUM LOOKING OVER PLATFORM CANOPIES
Portions of the old station at the right. The concreting plant is located at the inner end of a pair of station tracks where materials can be delivered by rail.

The figured roof load is 80 lb. per sq.ft. total on the trusses, made up as follows:

Live load	40 lb. per sq.ft.
Structural steel	19 lb. per sq.ft.
Roof slab	14 lb. per sq.ft.
Roof covering	4 lb. per sq.ft.
Ducts, piping, etc.	3 lb. per sq.ft.
Total	80 lb. per sq.ft.

The wind load on the vertical projection of the building is assumed to be 15 lb. for the first 80 ft. in height and 20 lb. for the height in excess of 80 ft.

Stresses—The stresses used following the Boston code comply very closely with the specifications of the American Institute of Steel Construction for the steel framing. The maximum value allowable in tension is 18,000 lb. and the maximum allowable compressive stress 13,500 lb. For combined stresses, including wind loads, the specified values may be increased 20 per cent.

The reinforced concrete was designed using a mixture of 1:2:4 stone or gravel concrete, in general using a maximum compression value of 700 lb. per sq.in. The reinforcing steel has a maximum stress of 16,000 lb. in all of the foundation work, concrete beams and girders throughout. In the floor slabs where steel bars are used the allowable stress is 18,000 lb. and where wire mesh is used 22,500 lb. per sq.in. All reinforcing bars are deformed and in the foundation work all bars have hooked ends in addition to the regular requirements for bond strength.

Concrete Seat Banks—The concrete seats and risers are 30 in. in width, the height depending upon the sight

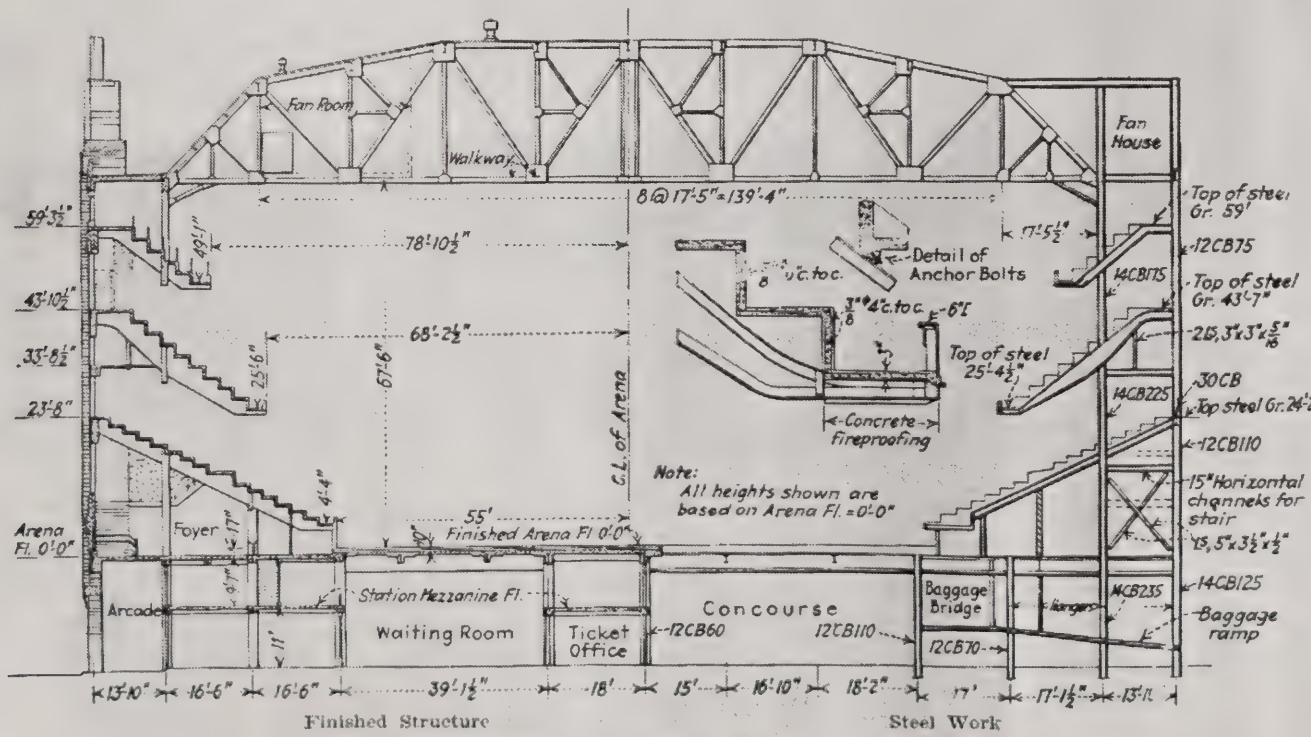


FIG. 5—CROSS-SECTION THROUGH COLISEUM AND STATION

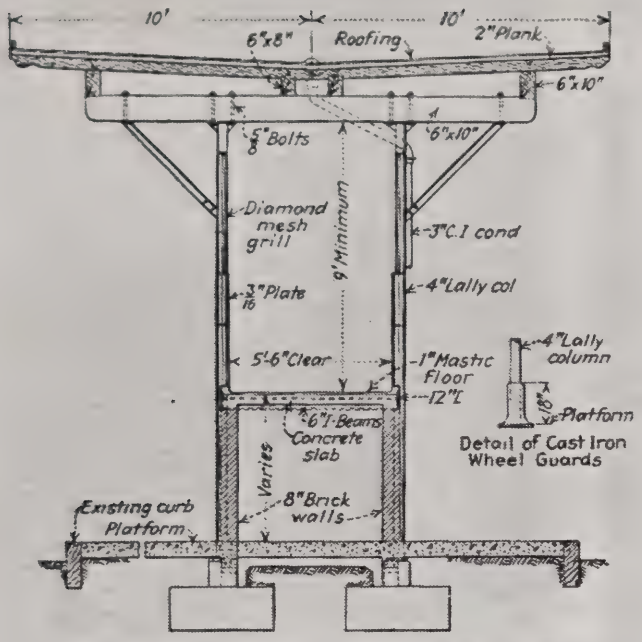


FIG. 7—CROSS-SECTION OF PLATFORM CANOPY THROUGH BAGGAGE RAMP

line requirement at each location. These concrete steppings are supported by the steel framework on about 20-ft. spans, the reinforcing in the risers being designed to carry the stepping horizontally between supports. Steps are 3 in. in thickness and risers 4 in., being cast with 1 : 4½ mix to obtain adequate shearing strength and to assist in working the material around the reinforcing and completely filling the forms. Special inserts for pipe sockets to take care of the pipe railings along the edges of the steppings were cast in the concrete. The chairs are bolted down with expansion bolts drilled into the slab.

Roof Construction—Before deciding on the type of roof construction, careful study was made by Clifford M. Swan, acoustical engineer, in order to insure a type of roof which would act as a sound-deadening element, making it possible to use the coliseum satisfactorily for various types of entertainment such as concerts, conventions, etc. The type finally adopted consists of a 1-in. thickness of compressed excelsior chemically treated so that it is both fireproof and sound absorbing. The results have been very satisfactory. Above this excelsior board a 2½-in. reinforced-gypsum slab was poured and covered with asbestos roofing material.

Finish—The exterior finish is of buff face brick carried out in strong vertical patterns, the pilasters being especially emphasized, presenting a modernistic exterior elevation.

The interior of the station is finished with terrazzo floor, marble wainscot and California stucco walls and ceiling. This stucco is tinted and textured for architectural appearance and the ceiling is paneled. These panels were laid out when designing the structural framing so that maximum headroom in the center of each panel is secured, as the plastering is directly on the bottom of the concrete slab. The ornamental lighting fixtures are attached to the ceiling at the center of each of these raised panels, giving a maximum height effect in the station.

The coliseum lobbies and foyers have terrazzo floors with plastered walls. The remainder of the interior is smooth surface terra cotta tile, in general painted to harmonize properly.

Stairs, corridors and concrete seat steppings are all given a monolithic concrete finish.

The roof trusses are painted aluminum color, the walls and facias light buff, all of the chairs being an olive green, the general effect in the coliseum therefore being light in tone.

Service Equipment—The heating and ventilating systems for the station and for the coliseum are entirely separate. In the station there are large fans at each end of the waiting room and concourse supplying fresh air, heated if required, to these rooms. From floor registers in the center of the waiting room a separate exhaust is provided to unit heaters delivering again to the center of the concourse. Direct radiation is used in all rental spaces.

In the coliseum the heating system has been designed to meet the variable conditions required for different gatherings, including boxing, hockey, concerts and conventions. Five large fresh air supply fans and eight exhaust fans in fan houses at the roof level are provided. The air supply is driven downward from the roof and exhausted at the arena floor and other levels, providing such clear air, even while the audience is smoking, that pictures can be taken and perfect visibility obtained from all parts of the house.

All of the air used for ventilation is filtered through oil-flushed air filters and then passed through heating stacks so controlled as to permit any desired temperature within the range of 40 deg. F. when the outside temperature is zero.

A system of caliscope temperature indication having 40 stations throughout the coliseum gives an accurate record of room temperature and relative humidity. The recording instrument is located in the engineer's room at the arena floor level.

The plumbing system has been carried out in accord-

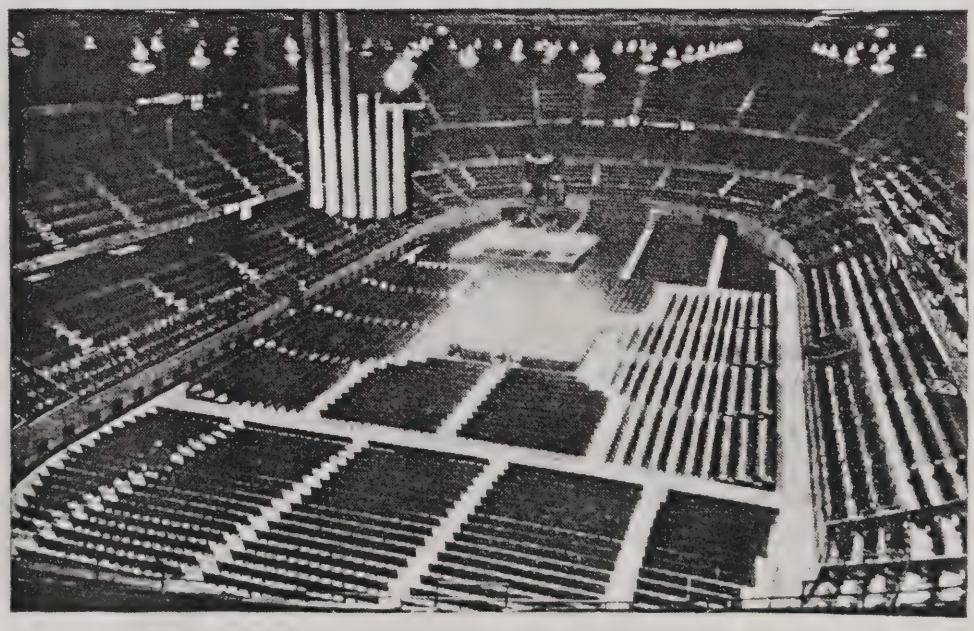


FIG. 8—INTERIOR VIEW OF COLISEUM AFTER PLACING SEATS

ance with the best modern sanitary practice. The toilet rooms have tile wainscot and terrazzo floors. In the station the men's toilet and the women's toilet are on the mezzanine floor at opposite ends of the waiting room, being operated on the pay turnstile principle in general.

In the coliseum the upper balconies have received the same consideration as the arena and mezzanine levels, with complete facilities for men and women, and wherever possible the women's toilets have been provided with an adjoining lounge room.

A complete system of fire protection is provided, permitting fire fighting from any level from at least six points at each level.

The arena floor has been equipped with a complete brine-piping system to provide an ice floor surface for ice hockey and public skating. Brine for this system is delivered through 10-in. supply and return mains from a refrigeration plant on Minot St. The ice floor requires 13 miles of 1¼-in. piping on 4-in. centers embedded in a special concrete floor surface. If it is required, ice can alternate with other events not requiring ice on successive evenings. The concrete finish containing these pipes is entirely separate from the supporting slab underneath and from the arena walls on all sides, so that the entire floor is free to expand or contract independently of the main structure.

Electrical Facilities—The electrical energy is purchased at 4,000 volts, three phase, alternating current and 230/115 volts direct current. The alternating current goes through transformer banks in various sections of the building, where it is reduced to a working voltage of 220 volts three phase for power and 115 volts single phase for lighting. The direct current is distributed by feeders to the equipment throughout the building, being used for power, exit lighting and emergency lighting. The lighting load amounts to 525 kva. and the power load to 600 kva., being used principally for battery charging and to drive the large ventilating fans and other miscellaneous motors that are installed throughout the building.

The operating center of the station is located in the station master's office. At this point the telegraph lines are centered for handling the train dispatching and railroad business and also the intercommunicating house telephone system, connecting with instruments distributed throughout the station. The master telechron electric clock controlling the station time system, the central fire alarm board connecting the station fire alarms into the city fire alarm system, and the code call are located here. The telautograph instruments are controlled through the instrument in the station master's office from a master sender in the railroad yard.

Telephone and telegraph rooms for the use of the public are located adjacent to the waiting room, with phone booths distributed throughout the station.

In the coliseum is also a house telephone system and outside switchboard. In the arena are special electric clocks mounted on the front of the two side balconies for boxing events, giving not only the time but also the number of rounds automatically. Also on the end balconies are electrically operated clocks for scoring and timing hockey games. Connections for press telegraphers are provided at the front of the balconies and also at the ringside, where the connections are concealed beneath the surface of the floor.

An amplifier hung from the center of the building can be operated from the ringside, from the balconies or from the engineer's room, distributing music or the human voice so that the sound is easily heard throughout the building.

Progress—The building was constructed without serious accident either to the public or employees, although construction was specially hazardous because all of the old station buildings were wrecked and the new building was constructed while full passenger traffic was maintained. Demolition began Dec. 3, 1927, at the east end, but the westerly portion was not released for wrecking until Jan. 9, 1928. The new station was occupied Aug. 20, 1928, and the opening event in the coliseum was held Nov. 17, 1928.

Personnel—The work on the North Station and Coliseum was carried out under W. J. Backes, chief engineer, with the direct supervision of F. C. Shepherd, consulting engineer, of the Boston & Maine Railroad. The architects on the station facilities and the exterior of the building were Fellheimer & Wagner, New York, while the Funk & Wilcox Company, Boston, had charge of the architecture and design of the coliseum. The construction work was carried out by Dwight P. Robinson & Company, Inc., a constituent of the United Engineers & Constructors, Inc., through B. S. Thayer, superintendent, and the author as designing engineer.

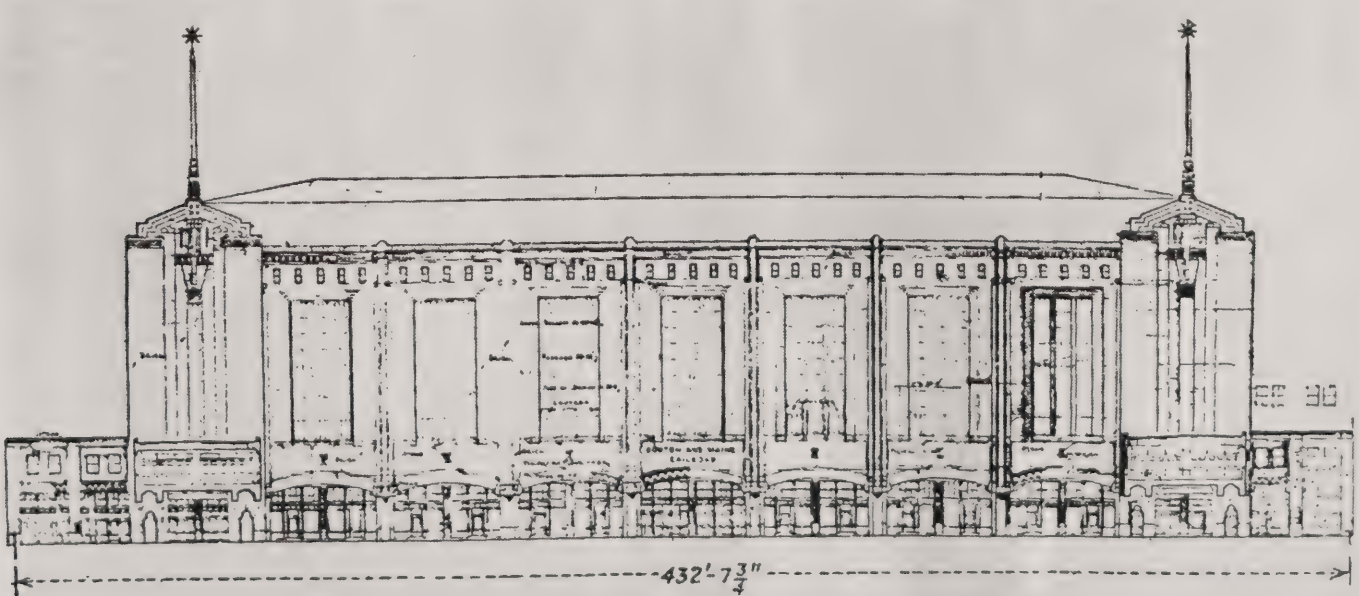


FIG. 9—ARCHITECT'S DRAWING OF THE CAUSEWAY ST. FRONTAGE

VII Photographic Documentation - Exterior and Interior

INTRODUCTION

The following photographs of the exterior and interior of the Boston Garden/North Station building document the existing condition of the building according to the requirements of the Historical American Building Survey (HABS) standards. The photographs were taken between August 10, 1990, and August 30, 1990.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/Boston Garden from Haymarket Garage**

View ID	101	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	101	Geographic Area	2. North Station
Date Shot:	8/10/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View looking NW up Canal Street at North Station/Boston Garden. Time of photograph is 12:30 pm.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Looking Northeast on Causeway Street, North Station/Boston Garden on the left.**

View ID	102	Photo Shape:	Vertical
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	102	Geographic Area	2. North Station
Date Shot:	8/12/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
This view shows the link between North Station/Boston Garden, center, with the elevated Green Line transit line, right. The Tip O'Neill Building is on the left.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: Looking Northeast from Causeway Street, near Friend Street at North Station/Boston Garden

View ID	103	**Photo Shape:**	Vertical
Job Number	8/10/90	**Where To Find:**	Peter Vanderwarker
View Number	103	**Geographic Area**	2. North Station
Date Shot:	8/12/90	**Priority:**	
Photographer	Peter Vanderwarker	**Companion View:**	No
		Original Format	4x5 Negative

Caption:
Front facade of North Station/Boston Garden, showing decorative brick details, arches, and elevated Green Line on the right.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/Boston Garden from T Platform above Causeway Street**

View ID	104	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	104	Geographic Area	2. North Station
Date Shot:	8/10/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

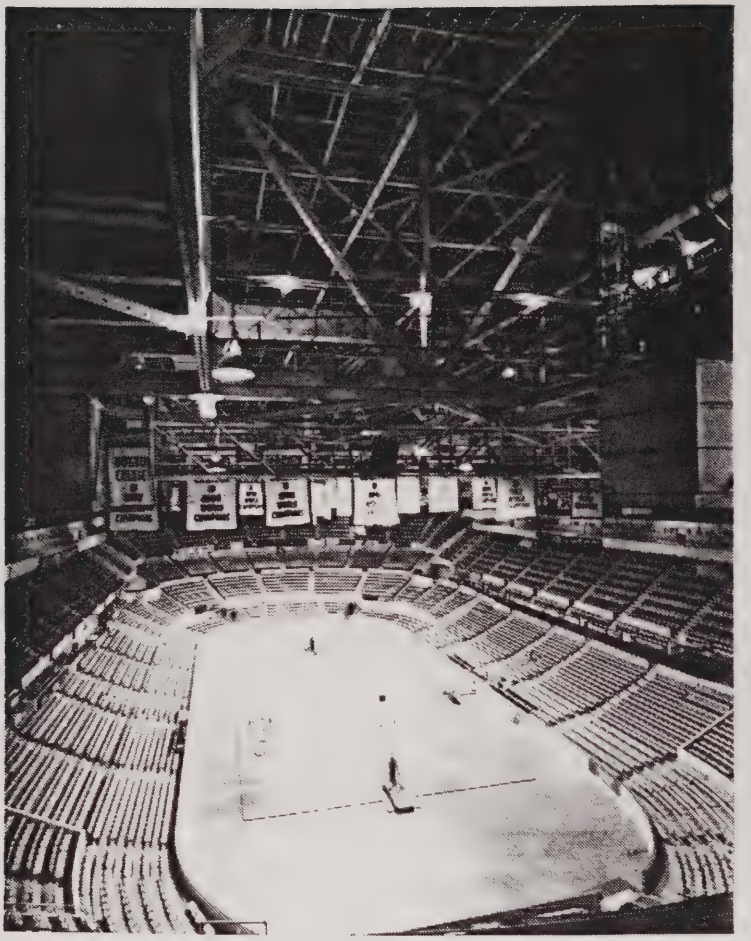
Caption:
View looking northeast at Boston Garden, showing connection to Elevated Green Line station. On the left is the Tip O'Neill Building, which stands on the site of the Hotel Madison, which was built as part of North Station/Boston Garden. The front of North Station/Boston Garden is unfortunately obscured by the elevated railway. Shot at 1:50 pm.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/Boston Garden, Interior of Arena**

View ID	105	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	105	Geographic Area	2. North Station
Date Shot:	8/12/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
An interior of the Arena taken from the first Balcony. The parquet floor is shown set up ver the hockey rink (no ice) in preparation for Celtics practices.



North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/Boston Garden, Interior of Arena**

View ID	106	Photo Shape:	Vertical
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	106	Geographic Area	2. North Station
Date Shot:	8/12/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
An interior of the Arena taken from the first Balcony. The parquet floor is shown set up ver the hockey rink (no ice) in preparation for Celtics practices. This view also includes the twenty foot deep steel trusses which support the main roof.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: North Station/Boston Garden, interior of ground floor lobby entrance to North Station.

View ID	107	**Photo Shape:**	Horizontal
Job Number	8/10/90	**Where To Find:**	Peter Vanderwarker
View Number	107	**Geographic Area**	2. North Station
Date Shot:	8/12/90	**Priority:**	
Photographer	Peter Vanderwarker	**Companion View:**	No
		Original Format	4x5 Negative

Caption:
A view fron the station looking out through the lobby to Causeway Street.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: North Station/BostonGarden from 77 North Washington St.

View ID	108	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	107	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View looking west from the 8th Floor of 77 north Washington Street, showing North Station, and the elevated Green Line. The new Tip O'Neill GSA Building is on the left edge, and the Anelex Building is on the right edge. The Central Artery is in the foreground.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: North Station/BostonGarden from Haverhill Street.

View ID	109	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	109	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View of the front of Boston Garden, showing the elevated Green Line transit line in the foreground. Haverhill street carries very little traffic and is used by excursion buses for a parking lot.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/BostonGarden from Causeway Street**

View ID	110	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	110	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View looking west at Boston Garden from Causeway Street, showing arcade at street level and connection to elevated Green Line Station. View shows decorative brickwork on arches and columns.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/BostonGarden: Corner detail from Haverhill St.**

View ID	111	Photo Shape:	Vertical
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	111	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View looking west at Boston Garden from Haverhill Street, showing arcade at street level and connection to elevated Green Line Station. Sheet metal additions to the Garden are visible at the top of the photo. At the right, a bridge extends over Accolon Way.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **North Station/BostonGarden: Detail from Haverhill Street**

View ID	112	Photo Shape:	Vertical
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	112	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
View looking west at Boston Garden from Haverhill Street, showing the front of the Garden and the Elevated Green Line. The Green Line station platform at North Station obscures much of the front of the Garden. The decorative flagpole belonging to the Garden is visible at the left edge. A large mural extends over Causeway Street. It is by Karen Moss, was completed in 1977, and is entitled, "Læaves 'N' Link".

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Front of Boston Garden, from Causeway Street, Detail**

View ID	113	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	113	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
The front of Boston Garden is cast into shadow by the bridge connecting the Garden to the Green line. Decorative brickwork enlivens the piers supporting the facade of the Garden, and record stores such as Strawberries occupy the ground floor of North Station.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Site of new Boston Garden, behind the existing Boston Garden, North Station.**

View ID	114	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	114	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
This view is of the construction site at the rear of Boston Garden, where a new parking garage is being built by the Massachusetts Bay Transit Authority. The existing Boston Garden is at the left edge, the Tip O'Neill GSA Building is at left of center, and the elevated ramps of the Central Artery to Leverett Circle are at the far right.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Rear of Boston Garden/North Station, with new construction**

View ID	115	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	115	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
The rear of Boston Garden/North Station as seen from the Northwest. The huge brick facade of the Garden is punctuated only by steel fireescapes. Construction in the foreground is for the new Parking garage being built by the MBTA.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: Accolon Way from Causeway Street.

View ID	116	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	116	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
A view of the alley which separated Boston Garden (on the left) from 150 Causeway Street on the right. Scaffolding and pedestrian walkways have been erected to protect pedestrians from new construction.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Interior, North Station Waiting Room**

View ID	117	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	117	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
The waiting room at North Station taken from the east end, looking west. Ticket windows are at the left edge, and the entrance to the train platform is at the far right.

North Station/Boston Garden Photographic Documentation: August, 1990

Photo Title: **Interior, North Station Waiting Room**

View ID	118	Photo Shape:	Horizontal
Job Number	8/10/90	Where To Find:	Peter Vanderwarker
View Number	118	Geographic Area	2. North Station
Date Shot:	8/28/90	Priority:	
Photographer	Peter Vanderwarker	Companion View:	No
		Original Format	4x5 Negative

Caption:
The waiting room at North Station taken from the east end, looking west. Ticket windows are at the left edge, and the entrance to the train platform is at the far right. A man sells flowers at the right and a popular restaurant, Au Bon Pain, is visible at the center.

VIII "A History of Boston Garden - A Diamond Jubilee (1928 to 1988)"

INTRODUCTION

The following publication commemorates the sixtieth anniversary of Boston Garden and includes a description of the social, cultural, entertainment, and sports importance of the building in the history of Boston.[10]

10/ Included courtesy of The Boston Phoenix.